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Textile World

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The Textile Industry Shows Its Wares

IN its new alignment with modern trends in business, the textile industry naturally focuses its attention upon one of the important tools: advertising.

The year now closing has witnessed marked progress in promotional activities. The agressive program of the Durene Association, the styled cotton campaign of The Cotton-Textile Institute, the style promotion work of The Wool Institute, and the completion of the three-year program of the Spun Silk Research Committee are outstanding examples. Another activity, the silk promotion campaign, has just been initiated during the last week.

Many observers are alarmed at the competitive element in these programs and claim that they represent merely a free-for-all fight among the various divisions of the textile industry for the same dollar.

Fortunately, we have learned not to be too dogmatic on the subject of advertising. Consequently we admit our inability to state flatly that the success of the silk campaign, for example, might not divert from the rayon industry a few pennies of the dollar which had been heading in that direction. We do know, however, that these campaigns, if properly formulated and prosecuted, can bring a new dollar into the textile industry as a whole. The division of that new dollar will depend upon the relative aggressiveness of the various branches.

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One of these programs is now approaching its third year. The executive committee of The Cotton-Textile Institute has unanimously recommended that a fund of $250,000 be made available for the continuance in 1931 of the advertising efforts on styled cottons. During 1929 and 1930 a similar sum was divided between the two years. As is known, the funds do not come out of the Institute's treasury but are provided by voluntary subscriptions from mills, selling agents and finishers specifically interested in styled cottons.

Space does not permit a complete resumé of accomplishments but among them have been sharply increased retail advertisements of styled cottons; receipt, by request, of the Institute's fashion articles each month by 335 newspapers, with estimated circulation of 6,500,000; increase of request circulation of the style bulletin "Flashes of Fashion" from 10,000 to 25,900; requests from 110 broadcasting stations in 37 states for weekly radio talks on cottons; establishment of separate departments in retail stores for handling styled cotton goods; revival of interest in styled cottons for shoes, millinery, bags and other costume accessories; more than 10,000 individual theater bookings of silent and talking picture news reels featuring cottons; and greatly expanded use of the Institute's swatching service.

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Positive evaluation of the cumulative results of all these activities is difficult, in fact, impossible. But the most casual acquaintance with the effectiveness of publicity through these various channels will indicate a return far in excess of the $250,000 expended in the last two years. George Sloan, speaking before the American Cotton Manufacturers last May, estimated that return at over $2,500,000. Certainly it has been more than sufficient to encourage executives to participate in the broader program planned for 1931.

Finally, too much emphasis cannot be placed upon the opportunities which such co-operative programs present to individual mills and selling agents for capitalization in their own campaigns. The groundwork is laid; a receptive audience provided. Any company, whose product and organization permit, is missing a bet if it does not "follow through" in its own way. Like all co-operative jobs, this one of group advertising is only part of the picture. "In the end," we stated in this year's Annual Review and Forecast Number, "each (man) has to do his own job in his own mill." This applies particularly forcibly to textile advertising.

The Week in Textiles

Merry Christmas! . . .

A GOOD MANY business men will glean some joy on Christmas morning from the negative fact that it isn't this time last year. At least they have 1930 behind them, and not in front of them. . . . . Textile mill men have a more positive source of Christmas cheer in the thought that they have behind them a year of constructive and courageous work, and in front of them a year when continued courage will yield dividends in the form of more adequate profits. . . . . In our 1927 Christmas issue, we suggested: "Be your own Santa Claus!" We feel today that that's just what textile men have been doing. . . . . So, Merry Christmas!—*Editor.*

Southern Executives Meet . . .

MILLS, North and South, representing 22,800,000 spindles have subscribed to The Cotton-Textile Institute's night work recommendation, stated George Sloan, who attended a meeting of 75 southern cotton mill executives held in Greenville, S. C., Tuesday. Only 700,000 more spindles are needed to reach the goal of 75% . . . . B. E. Geer, president of the American Cotton Manufacturers Association, made a strong plea in support of the recommendation. . . . . T. M. Marchant, chairman of the print cloth group, and S. M. Beattie, chairman of the narrow sheetings group, emphasized the importance of avoiding overproduction at this time. . . . . Mrs. Sloan also attended a meeting of Georgia and Alabama manufacturers in Macon, Ga., Thursday.

Japan's Silk Campaign Here . . .

THE PROJECTED silk popularization campaign to be conducted in this country on behalf of Japanese silk became an actuality last Monday when the Raw Silk Association of Japan officially approved the campaign at a general meeting in Tokio. Campaign calls for outlay by Japanese Government, filatures and exporters, in equal divisions, of a total of $600,000 annually for five years to educate the American trade and public to wider use of silk. . . . . Each cocoon may well swell with pride at the rosy future for succeeding silk-worm generations.

Cotton Consumption Upturn . . .

ACTIVITY OF THE cotton manufacturing industry of the United States has increased more than seasonally during the last four months, according to the New York Cotton Exchange Service. From August to November, spinning activity, as measured by average daily consumption of cotton, increased 26% this year against an average increase in the same period in the last five years of only 15%. . . . . "Without allowing for the irregularity in the periods covered by the mill reports," says the Exchange, "and taking the Government consumption total as issued, the average consumption per working day in November was 18,900 bales, compared with 18,100 in October, 16,800 in September, and 15,000 in August." . . . . Which recalls Dr. Haney's admonition "to make haste slowly."

N.A.C.M. Activities . . .

POSSIBILITY OF closer cooperation between National Association of Cotton Manufacturers and Arkwright Club, either by consolidation or otherwise, as suggested by Ward Thoron at Poland Spring, is being considered. Executive committee of N.A.C.M. has appointed a committee of three consisting of F. A. Flather, B. H. Bristow Draper and Ernest N. Hood to confer with the representatives of the Arkwright Club, Rodman Peabody, Alfred Colby and Robert Amory. . . . . N.A.C.M. executive committee voted to abandon

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The Textile Outlook

THE year-end holiday period is not one which normally brings much change to the textile situation. This year should not be an exception. It is a time for looking into the future and the scant inventories reported in various quarters is the bright spot on the horizon. From most markets come reports that considerable buying must be done in January. Given even a half-way return of confidence early 1931 buying of textiles might be fairly large. Conservative opinion warns strongly against anticipating such buying. Mills should play their cards close to the chest . . . Cotton goods have lost some of the ground gained in October but stocks are small and unfilled orders ahead of a year ago. Wool goods hope for spring covering in January after a dull December. Knit goods were irregular as to price and orders with buyers hesitating on spring coverage. Silk holds fairly firm and manufacturers have been working to clear seasonable goods.

The Business Outlook

AS WE draw nearer the end of this year there are a few faint signs that business is beginning to pull itself together in preparation for an effort to turn the tide when the next one begins. Resistance to further decline has stiffened slightly. Although our index of business activity fell somewhat further, from 77.5% of normal to 76.3%, steel production held up against the usual seasonal down trend, electric power production was fairly well sustained, merchandise carloadings were somewhat higher than seasonal expectation, and volume of commercial loans and currency in circulation continued to expand. Firmness in steel prices is being maintained, and both security and commodity markets give encouraging indications of reaction to excessive liquidation under more deliberate support. It is being more clearly recognized that while liquidity is laudable, it is not quite necessary to have a second flood to wash out the economic sins of the new era.—*The Business Week.*

Technical Department of the association. . . . . Continuance of Publicity Department will depend on whether there is sufficient demand for service of the publicity agent by individual mills, at their expense, to justify his continuing his work for the association. [We hope there is; we'll have much less time for play at the next N.A.C.M. convention if Tom Dinneny isn't there.—*Editor.*]

The Rayon Situation . . .

THE RETURN from Europe this week of several executives who had attended the rayon stabilization conference in London, failed to throw any real light on the 1931 prospects of the rayon industry. The homecoming officials confirmed the fact that the conference was held, but confined the remainder of their comments to assurances that they were optimistic about the future of the industry. . . . . Meanwhile, rayon factors expressed interest in reports from abroad that leading European rayon producers plan to come to New York in January for further conversations with American executives, to determine what steps might be taken to eliminate the present price uncertainty. The market was inclined to credit these reports, even though confirmation was lacking . . . . Current rayon sales are light, due to reports of a possible January price cut, and any conference here which reached some definite conclusion would undoubtedly bring a revival of confidence among manufacturers.

Combed Yarn Merger Coming? . . .

PLANS TO CREATE the largest combed yarn spinning group in the United States, which would include mercerizing and finishing units, were discussed this week. Headquarters would be in Gastonia, N. C., where most units would be located. . . . . There have been previous rumors of such a merger, which many in the trade feel must be consummated before prosperity can return to it. Difficulties have always stood in the way which, if they behave like difficulties in other similar cases, may melt away by dint of repeated effort.

Christmas Closing . . .

CONTINUED DETERMINATION of the industry to keep its production in line with demand is reflected in decision of some mills to close down all Christmas week, and of others to close from Wednesday noon to following Monday. . . . . All regret necessity of short time just now, but realize it is better than a glutted market, with subsequent demoralization, working to disadvantage of all engaged in the industry.

Secretary Lamont's Report . . .

THE PRODUCTIVE capacity of the American worker is increasing rapidly each year, states Secretary of Commerce Lamont, in his annual report made public Monday. . . . . "Department statistics," Secretary Lamont asserts, "show marked gains in productivity per person employed as compared not merely with the beginning of the century, but with the year 1919." For the 30-year period these gains ranged from 57% to 115% in the different branches, and since 1919 they have ranged 10 to 40%. . . . . The industrial recession while having a depressing effect on retail prices, did not retard volume sales. . . . . The report points out that wages have not declined in line with prices, which fact Secretary Lamont interprets as marking "the widespread conviction that permanent progress in prosperity is dependent on liberal wages and consequent large buying power on the part of the masses of the people, and that recovery from any setback will be promoted by the same policy."

Textile Program Based Upon Scientific Principles

Says Preston S. Millar

"The kind of cooperative campaign laid down for the textile industry holds promise of future progress. To me its encouragement of technical research and plant modernization naturally makes particular appeal," states Preston S. Millar, president, Electrical Testing Laboratories, New York. "No industry in our time can advance without technical research. Without it the development of plant and production equipment would be a slow procedure. To be applied most economically for the benefit of the whole industry research should be cooperative, with cost shared equitably by all."

The Helping Hand . . .

TEXTILE FIRMS in New York have been quick in offering cooperation to their customers who may be affected by the closing of the Bank of the United States (a State bank despite its title). . . . . Col. C. F. H. Johnson, president of Botany Worsted Mills, advised local trade associations that his company will continue to do everything in its power to cooperate with its customers to the fullest extent. The Woolen Corp. of America announced that it would "advance to any of its customers who are depositors of the Bank of the United States up to 75% of their net balances properly authenticated for the purpose of meeting maturing obligations to the Woolen Corp. of America." . . . . The bank had a large following in the cloak and suit trade and several prominent wool goods sellers are on the board of directors.

Strengthened Selling Organization

Pepperell's Answer to Business Depression

***From New England Office of* TEXTILE WORLD**

Russell H. Leonard, president and treasurer, Pepperell Mfg. Co., Boston, Mass.

A FEW weeks ago Russell H. Leonard, president and treasurer of the Pepperell Mfg. Co., startled those who have been ultra-conservative in trimming their sails during the storm by stating that Pepperell, despite the depression had continued its program of expanding sales. This had been possible, he said, because of the strength of the selling organization, which, instead of being cut during the last year, had not only been kept intact but had actually been augmented.

Mr. Leonard stated, in part:

"The Pepperell Mfg. Co. has been developing and strengthening its organization ever since it undertook to sell its own product. As a result of the strength of our selling organization, we have been able to expand steadily and increase our sales. Even the period of depression, which has been a handicap to all industries, has not been sufficient to retard our steady expansion. This is all due to our organization. Others have weakened themselves by reducing their selling personnel, letting good men go, or replacing good men with cheaper salesmen. We have made it a point to keep our staff intact. More than that, we have added to our personnel rather than cut it.

"Many of our selling houses and manufacturers have gone to the extreme, as I understand it, in their efforts to reduce overhead. They would do well to re-examine what they have done, and make sure that they have not undermined their positions."

Behind that statement are the facts of today, and behind the facts of today stand the definite sales policies which the company has followed since Mr. Leonard became treasurer in 1924.

No Forcing of Sales

One point should be clearly understood in considering the progress of the company during the current depression: Pepperell does not believe in running up sales totals at the expense of other factors. Some of today's selling activity may be attributed to a desire to build a firm foundation for better times, with a corresponding increase in unit sales cost, but it is certainly not of the "increase-sales-at-any-cost" type. One episode in the company's history is illustrative of the attitude toward the sales-profit problem. In 1929 the unprofitable Lowell plant was shut down and the other units curtailed operations to prevent an excess of goods on the market. Sales dropped $3,041,206 below 1928—but profits rose.

In seeking the background for the quoted statement an analysis of the various steps which the company has taken since 1924 indicate that the dominating sales policy has been "help the customer," and that mere expedients have not been used in approaching the problem. In actual practice such a policy consists principally in being in close enough contact with the customer to understand the customer's selling problems, and then working with the customer to solve these problems. Emphasis is placed upon helping the customer through suggestion, rather than "educating" by forcible feeding of set plans. Pepperell prefers to present the facts on what others have done, to make material and new ideas available, and then let the customer choose what is best suited to his requirements.

Close contact with customers is essential to work along these lines. It was evidently with a view of aiding this close contact that one of the first moves of the new management, after taking command in 1924, was to insist that the selling house set up a "Pepperell" department. A further move was made in 1926 when the company established its own selling organization.

Obviously, the closer the company works with the customer the greater the understanding of the customer and the greater the help which can be rendered. In addition to the day-to-day "service" Pepperell has taken several steps which are of particular interest. In sheetings, blankets, etc., attractive packaging, "Personality Bedrooms," radio talks, national advertising, and the like, have been among the means utilized—all with a view of assisting the customer. In addition, every endeavor has been made to find out what the public wanted so that these wants could be supplied. Occasionally, understanding of the public leads to a creation which the public wants, but doesn't know it wants—witness colored sheets, first introduced by Pepperell.

The details of the Pepperell national advertising campaign are picturesque and have been told many times, but

it has been insufficiently emphasized that such advertising is merely a logical outgrowth of the major policy of helping the customer and should be classed as advertising *for* the customer. Advertising *to* the customer ties in by stressing the assistance which Pepperell can render the customer in disposing of the goods.

Advertising Not Limited to Sheetings

One point of particular interest along these lines is that whereas most textile concerns are of the belief that consumer advertising can be applied only to such items as sheets, towels, etc., Pepperell believes that the same basic principles apply to goods sold to the garment cutters. Less than 20% of the company's product is sheetings. Sheetings have been used as a "leader" but with the conviction that the hundreds of other lines would follow the leader.

National advertising featuring the cutters who use the Pepperell label was inaugurated last spring as a specific method of helping cutters to cash in on the company's publicity. Another specific method of helping the cutters has been styling. In common with other progressive concerns Pepperell regards style as a weapon to be wielded, rather than a pitfall to be avoided with fear and trembling. Here again close contact with consumers, through customers, is a necessity.

In the group of materials which go to industrial users, such as canvas and the like, it is more difficult to pick out definite methods, but here also the policy of helping the customer has been carried out by a thorough study of the customer's requirements and assistance in solving technical problems.

Other policies which pertain to plant and equipment are allied with the dominant sales policy, namely, diversification of products, and geographical diversification of plants and of distribution. Steps taken in accordance with these policies reveal a logical sequence. Majority control of the Lewiston Bleachery & Dye Works, Lewiston, Me., was secured in 1925 since this plant did most of the finishing for the Biddeford, Me., unit. The first third of a southern unit was erected in Opelika, Ala., in 1925. The Massachusetts Cotton Mills, with plants at Lowell, Mass., and Lindale, Ga., was purchased in 1927, the Lowell unit being disposed of later. The second third of the Opelika unit was erected in 1929 and the same year saw the purchase of the Granite Mills, Fall River, Mass., a fine goods mill.

Putting the name "Pepperell" to work to help sell garments

"Pepperell" reputation aids distribution of men's shirts

These steps have been advantageous in that they enable the company to supply a wide variety of materials and avoid the risk of having production subject to the vicissitudes of one certain section of the country. Wide distribution has been effected through the establishment of sales offices in New York, Boston, Chicago, Atlanta, St. Louis, New Orleans and San Francisco.

Progress Not Haphazard

In surveying the various moves which Mr. Leonard and his associates have made, the striking feature is that certain definite goals have been set up and each individual step taken with the goal in view. Methods, however, have not been inelastic. In considering the major sales policy of helping the customer the temper of the organization is such as to engender the belief that specific methods of helping will be changed with changing conditions, but the company will always have the benefit of a target to shoot at. As to the company's attitude toward the future, this can best be shown by another excerpt from Mr. Leonard's statement:

"My associates and I," he said, "see a bright future for the textile industry and our efforts are concentrated to be able to take full advantage of all such opportunities that we believe are going to arise."

Good Progress Reported by United Merchants & Manufacturers, Inc.

The interest manifested throughout the textile industry in the question of mergers, and particularly vertical mergers, makes the attached summary of the progress report of United Merchants & Manufacturers, Inc., of particular significance.

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AN OUTLINE of the progress made by the United Merchants & Manufacturers, Inc., during the last year, was presented by Homer Loring, president, to the Kidder Peabody & Co. organization prior to the refunding of the corporation's $5,000,000, one year, 6% collateral trust notes, due Dec. 15. Lawrence Marx, vice-president of the company and head of Cohn-Hall-Marx Co., which is controlled by United Merchants & Manufacturers, also outlined the progress of the selling organization.

General Survey of Accomplishment

Mr. Loring did not make use of many definite figures or names in his statement, but confined himself to a generalized survey of what had been done during the last year and the future outlook. He stated that plans for the company are working out exactly along lines laid out a year ago and that remarkably good progress has been made considering business conditions. Among the other opinions given by Mr. Loring were the following:

1. The company was built up upon the plan that the most important part was merchandising, and to manufacture only about 50% of the capacity of the converters in which an interest had been purchased. The mills purchased represent only about 15% of the investment.

2. Four finishing plants have been built up and put into operation in the last year. Three of these plants are now in the "black' and it is predicted that the other one will get out of the red within a few months.

3. There have been some delays in attaining objectives of plant operation in the mills, due principally to a too optimistic attitude in allowing for the time necessary.

4. Half the cotton mills are now in the black and the showing is nothing to be ashamed of considering present business conditions.

5. The throwing plant owned by the company is doing well and additions are being made.

6. The cutters in which the company has an interest are very promising and this end of the business probably pays a larger return on the invested capital because the space is rented and the machinery inexpensive.

7. As a summary, present business conditions have precluded the possibility of the earnings predicted a year ago, but present condition is satisfactory.

Merchandising Progress

In speaking of the merchandising end of the business Mr. Mark, of Cohn-Hall-Marx, brought out the following opinions:

1. The sales volume today in dollars is about what it was a year ago.

2. Taking into consideration the depression in the price of merchandise this year's dollar sales volume means an actual increase in yardage of about 40%.

3. With normal prices—15 to 20% above present levels—the volume will be greatly increased.

4. Due to the fact that the cotton mills owned do not produce over one half of the goods Cohn-Hall-Marx uses, the company is in an excellent position to keep their own mills in excellent shape and to go into the market and take advantage of situations.

5. The finishing plant production does not take care of the demands, so the company can keep them running only on the more desirable work.

6. Cohn-Hall-Marx Co. has not made any money during the last year, but has not lost any. He believes this is something to be proud of because of drop in inventory. The company carries a normal inventory of four to five million dollars.

7. He believes that coming year can only be one of fairly good profits provided sales volume is kept up and there is every indication that it will increase.

8. The volume of business done by the cutters controlled by the company is increasing and enlargements are being made.

9. The cutters served as an outlet for some of the company's products and are also profitable.

Company's Background

United Merchants & Manufacturers, Inc., one of the pioneer vertical combinations in the textile industry, was organized in October, 1928, under the supervision of Homer Loring, who had just successfully completed the rehabilitation of the Boston & Maine R.R. Authorized capitalization consists of $15,000,000 6% cumulative preferred stock, par $100, $3,500,000 6% cumulative preferred A, par $50, and 750,000 shares of no par common stock. The finishing plants operated by the company are located in Fall River, Mass., Clearwater, S. C., Jewett City, Conn., and Canada. Three of the six cotton spinning and weaving plants are in the South and three in Massachusetts. At the time the original $5,000,000 note issue was floated, it was estimated that the four converting houses controlled by the corporation had an annual sales volume of approximately 250,000,000 yd. of rayon, cotton and silk products.

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Converters Score Night-Run Mills

Discussion at the meeting of the Textile Converters Association centered around the total elimination of night work in cotton mills, rather than the elimination of night employment of women and minors, as now proposed by the industry. The resolution adopted was aimed specifically at the former objective.

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DEFINITE action aimed at bringing cotton goods manufacturers who are not disposed to stop night runs, into line with the majority, was taken by converters at their annual meeting Dec. 16 at the Hotel Pennsylvania, New York. A resolution was adopted unanimously by the Textile Converters Association which makes it imperative for them to exert all proper influence in their power to bring this about.

In addition to this it is probable that an amendment to this resolution will be adopted in the near future specifying a clause which would be included in converter's contracts for cotton goods placed with manufacturers, making it a part of the contract that the goods called for had been made in the day time only.

Night Goods Inferior

Converters looked at the proposition in a broadminded manner, several speakers pointing out that it was to their best interest this be done from a number of different angles. One of the most important of these was because

Henry G. Lauten, president, Textile Converters Association

converters actually felt that goods produced during night runs were inferior in quality compared with those manufactured in day-run mills.

The action was taken against what one speaker termed a minority of malefactors. The concerns, either North or South, that refuse to stop night runs are engaged in what another speaker called "a cotton goods racket," one that should be stamped out quickly in the interests of the cotton textile industry.

More than 300 members and representatives from other branches of the cotton goods business were present and all realized that the definite action taken by converters will be one of the most potent weapons to bring about elimination of night work.

The following is the resolution that was adopted:

"*Whereas,* efforts have heretofore been made under the auspices of The Cotton-Textile Institute to persuade the cotton goods mills to adjust their production so that same may conform to economic demand for merchandise produced by them, and

"*Whereas,* while these efforts have met with substantial approval, those subscribing thereto are not as yet in such unanimity as to bring about the results sought; and

"*Whereas,* all textile trades would be greatly benefited by proper adjustment of the production of gray goods.

"*Now* be it resolved that in the opinion of this meeting, the best means of accomplishing the object sought would be effective proportionate curtailment involving total discontinuance of night work in the mills at present, and

"*Be it further resolved* that it is the sense of this meeting that every proper effort should be made by the individual converter to indicate his approval of those aims and to encourage by preferential consideration in his commercial dealings, those mills participating in adjustment aims above indicated."

Benjamin Riegel, Riegel Textile Corp., pointed out that now with industry generally in a depressed condition there was sufficient business being placed with cotton goods manufacturers to keep them approximately 100% engaged during day runs only.

It was pointed out that while only a small percentage are not disposed to stop night runs, this group consists of a number of large concerns, "malefactors of great spindleage," Samuel C. Lamport, Lamport Manufacturers Supply Co., called them in his address.

President Lauten read a telegram from H. R. Fitzgerald, president of the Riverside & Dan River Cotton Mills, Inc., in which Mr. Fitzgerald said that he was in complete agreement with the discontinuance of night runs and urged that the converters go ahead with their plan to exert every influence to bring it about.

Bertram H. Borden, president, M. C. D. Borden & Sons, Inc., told the members they had it within their own power to place the industry back on its feet. Without cooperation, he said, the trade would reach a state of chaos within a short time. His advice was for them not to do any business with mills that did not fall into line.

President Lauten read a telegram from Walker D. Hines, chairman of the board, The Cotton-Textile Institute, in which Mr. Hines said that elimination of night work for women and minors means that employment would be placed on a stabilized basis.

The following were elected to the board of directors of the Textile Converters Association:

Henry Lauten, of Prince-Lauten Corp.; M. J. Warner, of M. J. Warner Co., Inc.; Charles Pinnell, of Fred Butterfield & Co.; Walter B. Levett, of Standard Cloth Co., Inc.; Edwin E. Berliner, of Edwin E. Berliner & Co.; Ben H. Jacob, of Marvlo Mills; W. M. Macfarlane, of Wm. Anderson Textile Mfg. Co.; Harry Oppenheimer, of Brand & Oppenheimer, Inc.

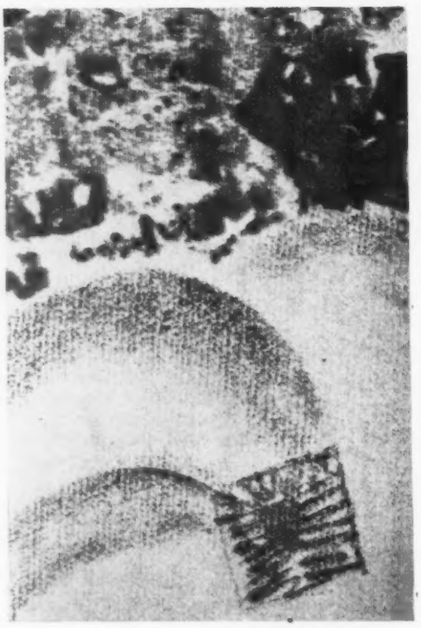
In addition to the vacancies thus to be filled, the following directors will continue, as their terms of office do not expire until the end of 1931:

Joseph Kahn, of Jacob S. Bernheimer & Bro.; David J. Loeb, of Dyekman, Loeb & Co.; Louis F. Hall, of Louis F. Hall & Co.; Arthur Fluegelman, of N. Fluegelman & Co.; E. A. Weiller, of M. Lowenstein & Sons Co.; Walter Dunnock, of Dumari Textile Co., Inc.

Photographic Engraving Broadens Scope of Textile Printing

FOR many years textile men have envied the ease with which paper printers prepared printing surfaces by photographic methods. Many attempts have been made to adapt these methods to textile work, but it has only been within the last year or two that much has been accomplished in this country in commercial application.

There are two general methods employed in printing photographs on paper: printing from a raised surface or relief, and printing from a depressed surface or intaglio. Photo-engraving properly refers only to the first, or relief, group and is not a common name for all photographic methods of engraving. A simple illustration of this group is the newspaper halftone. Without going into technical details, shading is accomplished by varying the amount of raised surface by a series of raised and depressed dots. It is obvious that photo-engraving, as such, is not suited to textile printing, since the amount of color which can be carried on the raised surfaces is necessarily small. Some of the mechanical methods used in preparing the halftone have, however, been used by textile engravers to prepare an intaglio plate.



Print on silk crepe, typical of photographic process

The second, or intaglio, group in paper printing includes photogravure and rotogravure. Photogravure is sometimes used to refer to the entire group and sometimes to one particular method of preparing an intaglio. The method which seems to offer the greatest possibilities to the textile industry closely follows the rotogravure procedure, and, for the sake of clarity, will be referred to as such in this article. In rotogravure the proportion of raised surface to depressed is constant and shading is accomplished by varying the depth of the etch. The ink, or color, is held in the depressions, and the surface wiped clean by the "doctor." It is evident that if the minute depression is comparatively deep, it will hold more color, and thus produce a darker tone than a shallow depression.

Preparation of Printing Surface

Photographic engraving of printing surfaces depends upon the same general principle as ordinary photography; namely, the ability of certain chemicals to be rendered more or less insoluble by the action of light. In photo-engraving the chemical usually employed is ammonium bichromate and in rotogravure bichromatized gelatin. Iron perchloride is generally employed for the etching of copper.

To prepare a half-tone printing surface it is necessary that the light be broken up into small separate shafts, and for this purpose the photograph is taken through a screen. In rotogravure, as contrasted with photo-engraving, the photograph is not usually taken through a screen, but the same effect is obtained by transferring the impression to the so-called carbon tissue, or bichromatized gelatin film, which has already been prepared by drawing insoluble lines upon it. Line work; that is, a design consisting only of lines or black and white masses, is easily handled by photographic methods without the use of a screen. The line cut of paper work, such as is used to prepare charts, is an example of this type. It might be mentioned that the screens employed in the publishing trade range from 50 cross lines to the inch for coarse newspaper work to 175 for printing on the highest grade coated paper, while the screens used in textile printing have only 50 to 100 lines.

Textile Applications

Two of the various methods of preparing a photographic printing surface as used in paper work, then, find application in the textile field. They are:

1. An adaptation of the photo-engraving process so that an intaglio rather than a cameo printing surface is produced; that is, by using depressed rather than raised dots and letting the doctor wipe the pins which remain.
2. The rotogravure method, where the shading is directly accomplished by the depth of the etch.

Each method has been used in preparing textile printing rolls (in addition to straight line work). Most companies making rolls use both methods and often use them in conjunction, the actual choice being a matter of judgment. It appears, however, that rotogravure offers the greater possibilities, since it gives a constant series of lines for the color doctor to wipe and results in a true shading.

In textile work with colors, as in colored photo-engraving, color screens are used so that a roll can be prepared for each color. Color screens cut out all light with the exception of one color and thus a photograph is taken of only one color in the design.

Some Problems

The absorbing power of cloth is far greater than that of paper; therefore the etch must be deeper, especially where discharge printing is done, and a method has been utilized of topping the roll with an acid resist and re-

etching. It is at once apparent that great technical skill is required in planning the depth of the etch so that a certain exact color will be produced, since all the various gradations in shade of that color depend upon the etch. Ability to produce all the various shades of a color, from white to black, is one of the good points in photographic methods, but it also presents one of the difficulties to be overcome in etching the print roll. Another difficulty which crops up at times is producing a roll which will stand the wear of a long run; and several plans have been worked out to overcome this factor.

An important problem in the preparation of printing rolls is the difficulty of joining. A flat positive must be placed on a round roller, and the joining of the two ends must be carefully done. An irregular line is usually cut, avoiding the heavy places on the design, and the joining is hand etched, but it is apparent that the amount of handwork required depends on whether the design consists of a large isolated repeat, an over-all pattern, or very small repeats. Photographic methods do not take into account the flush or spread of color which can be allowed for in other methods, although in a way the sharp etch of rotogravure takes care of this. Anyone who has taken pictures will realize that photography is not an exact science; and, where a number of pictures must be taken of a design, there is possibility of variation in intensity.

Preparation of printing rolls by the pantograph operation is essentially a hand method, with the resultant lapse of time, but is well suited to small repeats which cannot be handled well by photography. Large repeats with great detail are suited to the latter; but conversely, on the pantograph the larger the design, the greater the time consumed in copying details.

The difficulty in joining certain patterns has been mentioned. Repeats must be accurate. Other features of designing for photography are of interest. Blues in the pattern require the use of the more expensive panchromatic color plates. Color filters will pick out each color for use on successive rolls, but black is not a color and cannot be removed from a color when the latter is painted over black in the design.

In photo-engraving on paper it is usual to employ only three color plates and black: viz., blue, yellow, and red. Other shades are formed by overprinting, by which minute bits of two or three colors are printed closely together to produce optically a new shade. This is an enticing possibility for textile printing, although the difficulties are great. The fact that different dyestuffs are absorbed differently constitutes one of these difficulties. Another lies in the fact that there is danger of simply printing one color on top of the other, rather than forming a new color.

Photographic etching of print rolls is definitely a commercial proposition. Problems remain but considerable progress has been made and will continue to be made. The process offers certain possibilities from the market angle of time saving and in the production of designs which probably could not be handled in any other way, but there are also limitations. General opinion is that other methods will not be replaced, but that the whole field of textile engraving will be broadened.

Discuss Religious Life of Mill Village

WHAT part should the mill play in meeting the religious needs of the workers in the Southern industrial mill village?

This is one of the questions taken up in detail at the Third Annual Industrial Relations Conference of the Cotton Manufacturers of Georgia, which was held Dec. 12 at the Atlanta-Biltmore Hotel in Atlanta. The meeting was given over to a discussion of religious life in the textile mill village.

In general, those entering the discussion agreed that without the support of the mill owners, no church could be established successfully in a mill village.

On the other hand, it was pointed out, it is possible for the mill management to attempt to do too much in this direction, and thus defeat any chance it might have of accomplishing good. Workers were unanimous in reporting that in instances where textile mills built the church and Sunday School rooms and paid the parson, workers took the attitude of letting the mill do it.

To have a successful religious life, it was argued, the workers themselves must be compelled to take full responsibility.

Is religious interest greater or less in the mill village? —Generally speaking, it was agreed that religious interest is not less than in any other section, but the capacity for religious leadership is less, hence the accomplishment of results is more difficult.

Some of the reasons for this are given as follows: 87% of the workers in southern textile mills come from farms where the opportunity for going to church came only once or twice a month; they are accustomed to give irregular amounts at irregular intervals. Add to these habits a failure to adjust themselves to the new urban life, and there is a strong tendency to get out of church-going altogether.

To meet this condition, workers state that every effort should be bent toward developing leadership from within, not only for the present, but for the future, and the most successful mill village pastors are those who are concentrating upon this work.

While community Sunday Schools are being tried with success in a number of Georgia textile mills, all who have experimented with the community church idea have pronounced it a failure.

Church mission boards seem determined to concentrate their efforts where they have a majority or enough members of their creed to warrant establishing a new church. While mill owners, although perfectly willing to cooperate with any denomination in all fairness, need to be shown that the group is relatively important in numbers and in influence.

In cases where there are enough members, textile mills have built, or helped to build with exactly the same amount, three or more churches in their communities.

The feeling of the meeting was not that the mill worker is being reached by too many hands, but that he is not being reached at all in too many instances; train leaders to carry on the work out of the materials at hand, and the problem of religious life in the textile mill village would already be more than half solved.

Modern Practice in

DYEING COTTON COPS

By H. Marsden

INCREASED DEMAND for cotton fabrics containing yarn-dyed effects has resulted in considerable improvement in the methods and equipment employed for dyeing cotton yarn in the cop. Mr. Marsden in the first part of his comprehensive article describes briefly the present-day practice in cop dyeing and in subsequent instalments discusses in detail the design and construction of cop-dyeing machines and their importance in securing satisfactory results.

DEMAND for fabrics in which colored effects are produced in the loom has increased considerably during recent years. A direct result of this trend is that the practice of dyeing cotton yarn in the cop has developed rapidly. For some purposes cop dyeing offers many advantages when compared with the alternative and older method of dyeing yarn in the hank. Reeling cops into hanks and rewinding the cops before weaving add to the cost of dyeing. In addition to the loss of time, the wastage of material and the mechanical damage sustained by the yarn in these operations become serious items when very considerable quantities of material are handled.

Although the use of cop-dyed yarn is mainly confined to the manufacture of fancy cloths, it is finding a rapidly increasing application in the production of designs embodying large color effects, which require the same degree of perfection in dyeing as if the yarn were used to make solid-color fabrics. It is evident, therefore, that with an increasing field of utility, the demands on the skill of the cop dyer are becoming more and more exacting. Many beautiful effects are produced in the loom by the blending and arrangement of the colored yarns. With carefully selected dyestuffs, these effects can be further enhanced by the various finishing operations. Mercerizing, proofing, and even bleaching can be carried out in the piece without any deleterious effect on the appearance of the colored yarns.

Difficulties in Cop Dyeing

On the other hand, a considerable initial outlay is necessary to provide the plant required. Again, difficulties are met in the application of certain classes of dyestuffs; and these can be overcome only by constant care and skilled supervision. Even then such processes as the application of aniline black and para red present difficulties; and it can be said that thus far they have not been applied satisfactorily to yarn in the cop. The uncertainty of regularly obtaining satisfactory results is a disadvantage which must be borne in mind with regard to cop dyeing, and often considerable experimental work is necessary to secure this regularity.

At the same time, with a careful study of the problems involved, it is possible in most cases to produce results meriting the approval of the manufacturer. Direct dyestuffs give the least trouble, although the members of this class used alone, or in combination, have to be selected carefully from the large number available. Developed shades are troublesome on account of the irregularity of successive dyeings. Basic dyestuffs are prone to give uneven dyeings which tend to rub badly. Sulfur dyestuffs do not give much trouble, except that the difficulty of washing off renders the yarn liable to excessive tendering, a defect which always attends the use of this class of dyestuff. Indigo is difficult to oxidize completely, and with vat dyestuffs sediments and dirt are troublesome. Many of these difficulties are those natural to the use of the various classes of dyestuffs; and while they may be of little importance or easily avoidable in the commoner forms of dyeing practice, they sometimes acquire a special significance in cop dyeing.

Cop-Dyeing Equipment

Machines for carrying out of cop dyeing have been developed in large numbers, each one being designed to overcome some special difficulty. The various types of machines on the market can be divided broadly into two classes: (a) pack machines; and (b) perforated spindle machines.

A pack-dyeing machine consists of a box, provided with a tightly fitting cover and pipe connections, and back boxes for storing dye liquor and clean water. The pipe line is fitted with a powerful rotary pump and with valves, so that the liquor may be circulated or distributed between the vessels as desired. The pump has a reversing gear; and the dyeing box is connected with a vacuum plant and can be exhausted as desired. Solid composition or wooden spindles are first inserted into the cops to prevent them from collapsing under the pressure of the liquor. The cops are then packed in the dyeing box as closely as possible, so as to offer an even pressure front to the passage of the liquor. The intervening spaces are filled with cotton waste, ground cork, or other suitable material.

Another cop-dyeing machine which is slowly coming into prominence, is devised to use centrifugal force as a means of securing penetration of the dye liquor.

The cops are placed in a wire cage within the chamber of a hydro-extractor. The dye liquor is then introduced into the machine by means of the central spindle, and is driven through the cops by the rotation of the machine. A small rotary pump returns the liquor as it escapes to a reservoir fitted above, whence it returns by gravity to the machine.

In a perforated spindle machine each cop is placed on a separate perforated spindle, and the spindles are mounted on a central chamber from which the dye liquor is forced or sucked through the cops. The general arrangement of this machine differs little from that used for pack dyeing. The same pump, back box, pipe line, and vacuum system are necessary. The dye vat is open, and contains in its base nozzles, by means of which the cop carriers are connected to the circulation system. Differences in the various machines are confined to the carriers of the spindled cops. Some dyers prefer the hollow-plate type, so made that they may be placed in tiers in a machine, while others favor a cylindrical chamber with the cop spindles fixed radially round it.

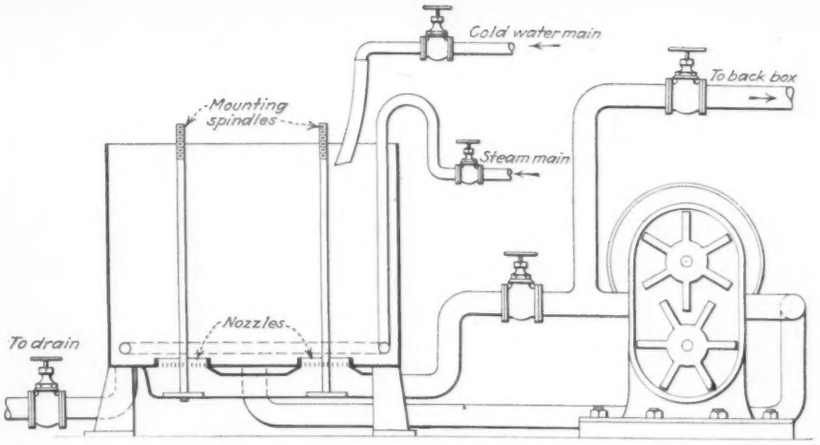


Fig. 1. Section of cop dyeing machine

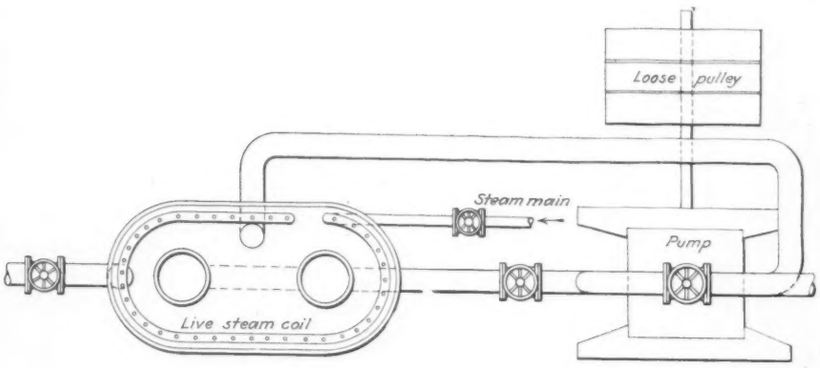


Fig. 2. Plan of cop dyeing machine

The type of machine shown in Figs. 1 and 2 has given satisfactory results in practice, combining as it does simplicity with efficiency and minimizing most of the difficulties of cop dyeing. The diagrams give all the necessary details. The machine itself consists of a dye vat made of iron, with circular ends, and lined with a non-corrosive alloy or metal. It is provided with two mounting spindles, threaded at the upper end to take large butterfly or capstan nuts, and fixed in the base in the center of the two nozzles. Between the two nozzles at one side in the base of the vat the liquor-return pipe is connected, and a waste pipe is attached at one end. A rotary pump, the drive to which is fitted with a reversing gear, provides the necessary circulation of the liquor. Valves are fitted in the pipe line to allow the back box to be used either for storing liquor for the maintenance of a standing bath or for clean water. Both the dye vat and the back box are fitted with a perforated steam coil, and when necessary with a closed steam coil. These machines are best fixed in batteries of three or four according to the type of dyestuff being used.

Accompanying each battery of machines is a vacuum system (Fig. 3). This consists of a vacuum pump of large dimensions, a reservoir provided with a gage, and a vacuum plate provided with two nozzles similar to those in the dye vat. The reservoir, having a high vacuum, offers a violent pull to the wet cops when the valve is opened, and serves as a trap for the extracted liquor which has to be run off at intervals. The cop cylinders are moved from place to place by means of traveling cranes mounted on a gantry.

Perforated-spindle machines are relatively expensive; but the regular and even results which this type of machine gives, quickly repay for the additional outlay. Since each cop is dyed separately, there is not the same danger of producing uneven shades as in the pack machine where the first layer of cops to come in contact with the liquor often acts as a filter and extracts more than its fair share of dyestuff from the liquor. Again, since the dye vat is open in the spindle machine, sampling is easily carried out while the dyeing is in progress, penetration is regular, and the circulation of the liquor does not require such a powerful pump as does pack dyeing. Hydro-extraction and the removal of excess dye liquor is simple, speedy, and efficient. On the other hand the spindles are very fragile, and are easily bent or broken; and therefore require careful handling; the perforations in the spindles are small and are easily choked by sediment or cotton waste, a blocked spindle resulting in a partially dyed cop, which in many cases is difficult to detect before it reaches the loom.

For general purposes and for small quantities the spindle machine is pre-eminent. It successfully competes with the pack machine in the dyeing of large quantities of stock shades, although the latter machine is still used extensively where large weights of goods of one shade are quickly required. When the class of dyestuff lends itself to the use of a standing bath, a battery of spindle machines gives a large output.

Cop Carriers

The cop carriers are metal tubes about 9 in. in diameter and 30 in. in height (Fig. 4). The upper end of the tube is closed except for a central hole 1 in. in diameter to take the central mounting spindle of the machine. Two eyebolts are fixed in the top of the carrier for lifting purposes, one at each side of the central opening. The lower end of the cylinder is so machined as to fit tightly over the nozzle in the base of the machine. The spindles are screwed into the cylinder wall, being fixed radially at regular intervals. A cylinder of the above dimensions will carry about 30 lb. of pin cops, a machine

thus having a capacity of about 60 lb. If a 30-lb. dyeing is required, one cylinder alone can be used, the other spare nozzle being closed by means of a dummy cylinder. If smaller quantities than this are required, cylinders provided with spindles fixed at greater intervals are made use of; similarly if twist cops are to be dyed, cylinders with larger spindles fixed at greater intervals must be used.

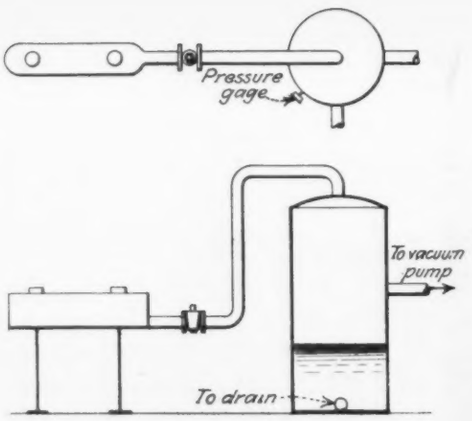


Fig. 3. Arrangement of vacuum system

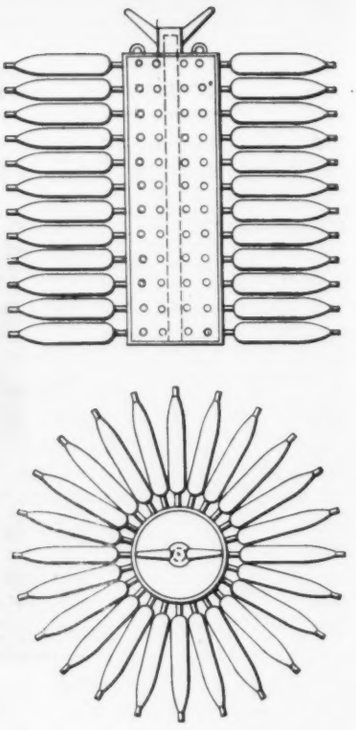


Fig. 4. Cop carrier or cylinder

It is essential that cops to be dyed as such should receive careful attention at the hands of the spinner. The tubes on which the cops are built must consist of specially prepared absorbent paper, free from chemical impurities, and should be perforated at intervals. Regularity in the build of successive doffings of cops is essential. The spinner should always be in possession of a perforated spindle on which to test his work, as a cop built too high or low on the paper tube inevitably causes trouble for the dyer. More than usual care is necessary to see that the cops are kept as free as possible from oil and dirt and other contamination likely to cause faulty dyeing.

Dyeing Methods

On arrival at the dyehouse each consignment of cops is examined and tested for weight, count, and moisture before being put into work. The empty cop cylinders are placed on low tables in line with the battery of machines in which the dyeing is to take place. The cop cylinders and spindles are cleaned of any traces of previous dyeings, and the spindles are oiled by rubbing with cloths saturated with olive oil, which operation assists the cops to slide on to the spindles. French chalk has been used for the same purpose, but oil gives the best all-round results. A double handful of cops is just tipped on to a vertical row of spindles, and each cop is forced home by gentle pressure with the palms of both hands at the same time giving the cop a slight rotary movement. To force the cop straight into position, generally causes it to be unevenly dyed. When the cylinders are filled, they are removed by means of overhead traveling cranes to the boiling-out machine. Boiling water is circulated through the cops for 30 min. in alternate directions, care being taken that this operation is started by drawing the water through the cop from the outside. If the boiling is commenced with the flow of water from the inside, there is a tendency for the cops to be forced from their correct position on the spindles.

After 30 min. the cylinders are lifted, and the excess water removed on the vacuum plate. During this operation the upper end of the cylinders is made air-tight by closing the spindle hole by laying a leather or rubber pad over it. It is advisable to allow a reasonable time to elapse before dyeing, so that the material may cool, but surface of boiled-out cops must not remain exposed to the air long enough to dry.

The dye vat can be prepared while the cops are being boiled out, and the cylinders are carefully and quickly lowered into it and firmly secured in position on the spindles by means of the butterfly nuts. The circulation of the liquor is then commenced and continued for one-half until the dyeing is completed. It is not a matter of indifference as to which way the circulation is commenced or continued, but this matter is discussed more fully in a later paragraph. Sampling is carried out by removing a cop from one or both cylinders, reeling, washing, and drying a hank, and comparing it with the standard pattern. Shading additions can be made in a manner in accordance with the needs of each class of dyestuff.

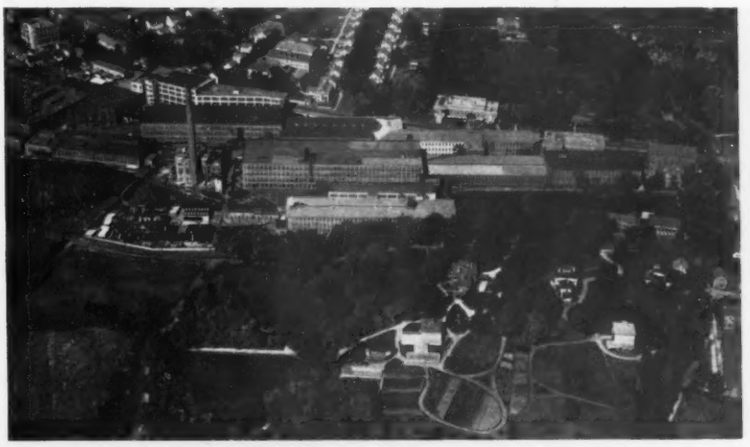
When the dyeing is completed, the cylinders are lifted and removed to the vacuum plate for extracting, washed off, aftertreated as necessary, again vacuumed, and removed to the tables for "off spindling." The cops are withdrawn from the spindles by hand and placed on perforated trays or wires for drying. These trays or wires vary according to the class of goods undergoing treatment. Shallow metal trays in which the cops are stacked on canvas sheets in a single layer are used for the darker shades. For the more delicate shades and tints wires are used consisting of two layers of wire mesh separated from each other by strong supports at the edges about 2 in. long. The lower mesh is close, while that of the upper wire is slightly larger than the diameter of the cop. Thus each cop stands separately upright, the air in the drying stoves being able to circulate freely in and about the cops. Boards, provided with protruding rows of blunt nails upon which the cops are placed, are also used.

The drying stoves are arranged in batteries, air being drawn through them over steam pipes by means of a powerful fan. The batches of trays and the air-circulation system are so arranged that the hottest and driest air passes over the goods nearing completion, so that the last traces of moisture are removed. When ovens are in use, drying is carried out overnight. During the day successive batches of cops are stacked on shelves starting at the bottom, so that at the end of the day the wettest goods are nearest to the outlet for the moist air. The ovens are large brick rooms, the floors of which are loosely boarded over steam radiators of appropriate dimensions. The air inlet is below the pipes of the steam radiator, and the exit through the roof; the heated air removes the moisture from the cops as it ascends.

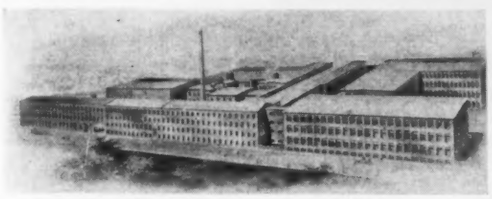
When dry, the cops are stacked on tables in layers between damp canvas cloths. By conditioning in this manner the moisture regain is complete in about 24 hours. When conditioned, the cops are examined, passed for shade, and sent forward for weaving.

(*To be continued.*)

Whitin Machine Works Acquires Fales & Jenks and Woonsocket Companies



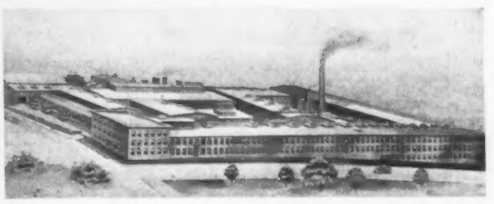
Manufacturing plant and industrial village of Whitin Machine Works, at Whitinsville, Mass.



Woonsocket Machine & Press Co., Inc., at Woonsocket, R. I.

Bachrach

E. Kent Swift, treasurer and general manager, Whitin Machine Works



Fales & Jenks Machine Co. at Pawtucket, R. I.

ONE of the most important recent developments in textile machinery circles was reflected this week in the announcement by the Whitin Machine Works, Whitinsville, Mass., that it had completed negotiations with the Fales & Jenks Machine Co., of Pawtucket, R. I., and the Woonsocket Machine & Press Co., of Woonsocket, R. I., for the purchase of the plants of these concerns. Whitin Machine Works will retain in its line of machinery, those lines of machines formerly manufactured by Fales & Jenks and Woonsocket, particularly the roving and picking machinery made at Woonsocket and the spinning and twisting machinery made at Fales & Jenks.

This development brings together under one control well-known plants which have been outstanding factors in their particular lines of machinery for a great many years. It marks the passing of Fales & Jenks Machine Co., one of the oldest machine shops in the country, the business having been founded in Pawtucket in 1930 and now passing through its 100th year. The principal product has been ring spinning and twisting machines. Woonsocket Machine & Press Co., Inc., dates back to 1873 and is known as one of the principal manufacturers of cotton roving machinery. In late years it has developed picking, carding and drawing machinery.

Whitin Machine Works is one of the large companies manufacturing textile machinery in this country, and this coming year will mark its 100th birthday, it having been started in 1831. The development of the concern has remained continuously in the hands of the same family since its early beginning. It has notably diversified its line of machinery and today offers not only cotton preparatory equipment but also builds a complete line of machinery for the manufacture of woolen, asbestos and cotton waste yarn, and substantial lines of machinery for the manufacture of worsted and silk. In addition it is about to present a line of machinery for the production of rayon and other synthetic fibers. The steady growth of the Whithin organization has made this latest step a logical one.

With the acquisition of Fales & Jenks and Woonsocket, Whitin expects to present to the trade an exceptionally well-rounded line of machines touching the production of every class of yarn made from all fibers. It is the belief of the companies involved in this latest development that, by bringing together these various lines of machinery under one roof, a concentration of manufacturing and development facilities will result in better service to the cotton, wool and allied industries.

In addition to retaining the lines of machines formerly manufactured by Fales & Jenks and Woonsocket, Whitin also hopes to retain in its employ those men who have successfully built up and developed these machines to

(*Continued on page 70*)

Important Details Govern

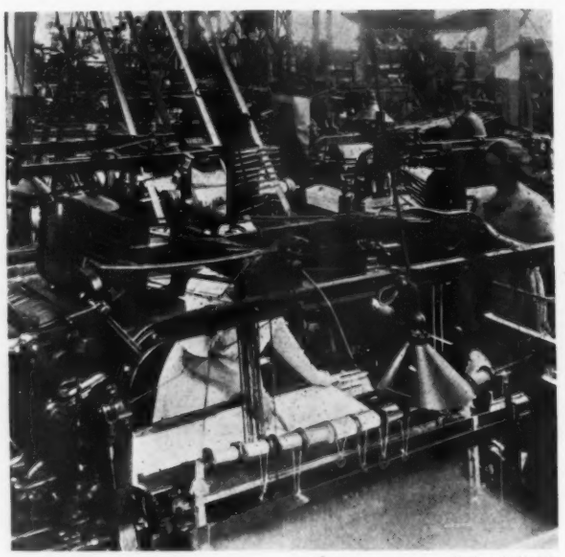
Quality of All-Rayon and Rayon-Silk Fabrics

By John Picone

MANY defects in all-rayon and silk-and-rayon fabrics could be avoided without serious inconvenience by the exercise of greater attention to details and of more careful judgment.

As many manufacturers of rayons have plants in different sections of the country, care should be taken to see that yarns from two different plants are not run together. This will cause defects, such as streaks, shadiness, and barré marks. Each lot should be marked and run through the various operations separately; because, if some yarns are of different age than others, shadiness will occur in the dyeing. The dyer should be notified of any change in the rayon yarns.

The mill should examine each lot of rayon yarn, whether skeined or thrown, for defects. A lookout should be kept for defective skeins, bruised bobbins, and oil stains. Bobbins should be inspected for twist. Sometimes in the setting of the twist in the throwing mills the yarn is scorched. Insufficient steaming will cause the twist to slide.



Ewing Galloway

Attention to details and good judgment are essential for weaving rayons satisfactorily

Precautions in Winding

In the winding department, some mills use the shaking post, but I believe that this is unnecessary and does more harm than good.

The oil problem is another important subject, but it should be sufficient to say regarding it that only the best oils should be used if good results are desired. The skeins should at all times be allowed to dry before being placed upon the swifts. They should be put on the swifts just as they are received. The knots in the bands should be to the right as the winder faces the swift. Make sure that the tie bands are cut and not broken, as breaking causes a strain on the yarn.

Large knots should be avoided as much as possible, as they are the cause of many floats, bird's-eyes or knot holes, warp breaks, etc., in the woven fabric. Operators should be made to comprehend the fact that weaver's knots should be tied at all times. This is essential for good weaving. The same fault should be watched for in skeins and thrown yarns.

Another fault that is common in the rayon skeins is broken filaments. Skeins with these imperfections should be put aside; because, if they are allowed to go through, they will cause bunches between harness and reed. In the writer's opinion, the less tension used through the winding operations, the better, in order that as much elasticity may be retained in the yarn as possible. Extremely loose bobbins, however, should be avoided.

The porcelain guides must be smooth to prevent cutting and bruising of the yarn. A short time ago, the writer was called to a mill which had just changed from raw silk to rayon and which was having considerable trouble in the winding operations. After a careful observation of conditions, the writer rubbed a penknife blade across several of the porcelain guides and found them cut at least $\frac{1}{32}$ in. New guides were installed, a slight reduction in speed made, and tension adjustments improved, with the result that the troubles were reduced to a minimum. In changing from raw silk, the writer believes in discarding all guides and installing a complete new set.

Good Warping Essential

Good warping is very essential for the weaving of rayons. Bad warps hold up production and cause many seconds. In preparing rayon for sizing, a soft beam should be made. Yarn already sized should be beamed hard.

Bobbins on the creel should not be at too much of an angle, as this causes friction and streaks. The bobbins should rotate freely, and it is advisable to oil the pins on the creels occasionally. The writer does not believe in pulling the warp wheel back when an end breaks, as this causes the ends to roll, giving trouble in the weaving. Bobbins of the same dimensions and weights should be used. The bobbins on the creels should be nearly uniform in size, for variations cause tight and loose ends in the warp.

The warping creel must be absolutely true without loose play in the traveling motions, as this causes sections to overlap. Sections should be set about $\frac{1}{8}$ in. apart. The writer believes that best results can be obtained by running the yarns through a cross in back of the spacing reed. Two many ends must not be bunched in this

reed. It is more advisable to use a finer reed, as it tends to keep the ends more even.

In beaming, it should be made certain that the beam is true and that the beam heads are fastened securely. The beam should be covered with an apron or leader at least 3 in. wider than the warp. Care should be taken to see that warp beams run evenly, as uneven warps will cause uneven and barré cloth. It is not well to put too many laps of warp yarn between papers. The more paper, the better. The writer prefers to have a warp paper at least every eight yards. Too much yarn between papers causes the ends to roll at the edges; thereby causing ragged edges in the woven fabric.

Best Looms Desirable

In weaving rayons, the machinery should be of the best. The writer has not yet seen any old looms rebuilt well enough to weave rayons satisfactorily, although the same looms might weave silk or cotton without trouble.

Considerable attention should be paid to the construction of the fabric. The writer once saw some finely laid-out rayon-and-silk mixtures which were too irregular, due to the fact that too few harnesses were used. At his suggestion the warp was drawn over into ten harnesses. The results were very satisfactory—the weaving was smooth and the fabric finished well.

In weaving rayon-and-silk mixtures, care should be taken to have the correct tension, as raw silk can be stretched considerably more than rayon. If the rayon is stretched much beyond its point of elasticity, it has difficulty in adjusting itself to adjoining silk threads.

For weaving rayon satins and rayon crepes, the writer will offer a few suggestions based upon his experience. Be sure to use good heddles, not old or worn. Much trouble arises from sharp heddle eyes. Avoid crowding too many heddles per inch, as this causes friction, chafes the warp ends, and causes fuzz between the harness and the reed. Use a reed that is flexible, but avoid crowding too many ends per dent. It is far better to use a reed having 45 ends per dent than a finer one which would hold up weaving production.

When starting a warp, see that the shuttles are not worn, that the pickers are in good condition, and that the lay is smooth and covered with a good felt. See also that the reeds and boxes are in line, the loom not picking too early, and the shuttle traveling straight. The writer has found that by putting a little black polish on the shuttle, its true course can be found.

Make sure that the reed is movable, that the warp is exactly centered, that there is no binding in the friction or rope tension, and that the size of the shed is not too great. The top and bottom warp threads should be equidistant from the center of the shed. To determine that this is the case, a cord may be stretched from the whip roll through the shed to the top of the breast beam, and this cord line used as the warp line to which the harness may be adjusted. Although certain fabrics are woven to better advantage with regard to cover when the top shed is somewhat higher, this cannot be done with satisfactory results when weaving rayons. A full, even shed is essential, so that each pick of filling can be beaten against its predecessor with the least effort.

In weaving satins or crepes or any one-beam fabric, the writer believes that excellent results can be obtained by having the warp beam as close to the whip roll as possible.

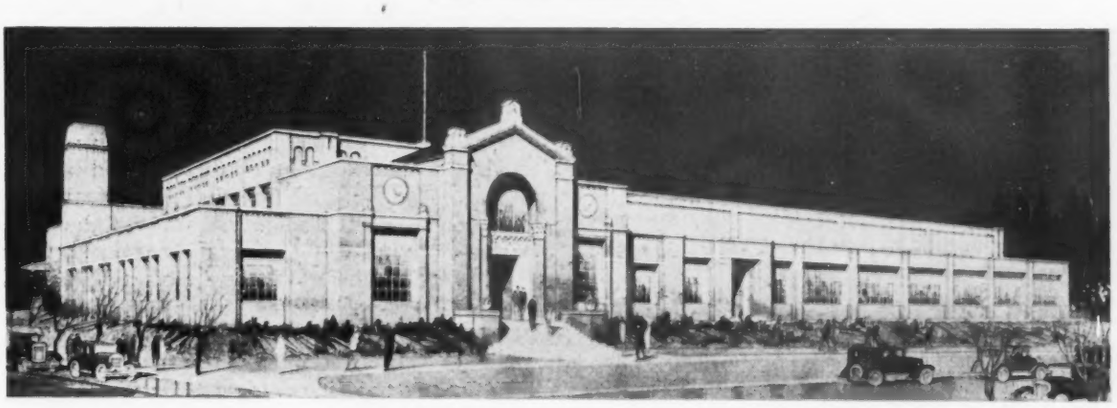
With regard to the speed of the loom, it is far better to run it at 145 r.p.m. and get results, than at a higher speed and suffer more loom stoppage and yarn breakage.

With respect to timing of the shed, this is a question regarding which there are many different opinions. The writer has found by experience that different fabrics need different adjustments. In mixed yarn, setting the harness even with the reed about $\frac{1}{4}$ in. away from the fell of the cloth gives best results. In rayon crepes and satins the writer has found that setting the loom slightly over center will give better fabric.

Mills weaving rayon crepes should be well posted as to the proper methods for tensioning the filling. Although the blame for kinks, stars, shiners, and cockles is often rightly placed on the throwster, the weaver is sometimes at fault. He should at all times watch the humidity in his weave room. The writer has found it advisable in running cloth of this kind to have a humidity of around 55° to 60° and never above 70°.

The shuttle should be watched as to tension and lined with a good fur. See that the tension pulls evenly, as in most cases the cause for cockles, kinks, and shiners lies in the shuttles, due to improper tension.

There are a great many excellent fabrics being made in both transparent and opaque weaves. One of the most popular cloths is a flat crepe containing either 75- or 100-denier warp and 100-denier filling. There is no question that the rayon crepes and satins have come to stay, although the writer believes there will be a tendency to go to the finer deniers, due to the constant improvements being made by the rayon manufacturers. There is no question that such fabrics, when properly constructed, have beauty and wearability and should find a ready market.



Architect's drawing of Jantzen Knitting Mills new London plant and European distributing center, which was opened recently. Jantzen's main plant is in Portland, Ore., with manufacturing branches in Australia and Canada

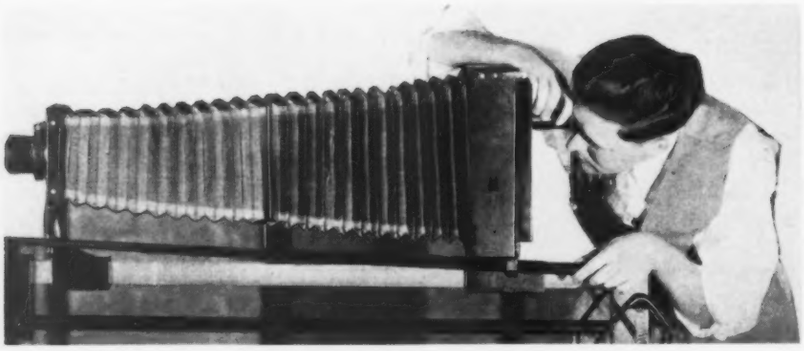


Fig. 4. Use of the focusing glass

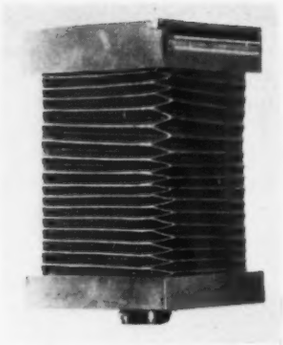


Fig. 1. Plate-holder in position in camera, with dark slides locked in place

Don't Be Afraid of The Microscope!

By Edward R. Schwarz, S.B., A.T.I.

Article XI, Photomicrographic Technique*

In making photomicrographs the photographer will find it advantageous to follow through all the steps in the process rather than to relegate developing, printing, and similar operations to anyone other than himself. Professor Schwarz in this article describes in detail the procedure and equipment required to produce satisfactory results in photomicrography. Arrangements have been made for publishing this remarkable series of articles in book form after its run in TEXTILE WORLD has been completed.

IT HAS been pointed out previously that the photomicrograph is a valuable record of a microscopic observation. Just how valuable it may prove to be is largely dependent upon the technique adopted and the degree of knowledge of the apparatus and materials possessed by the operator.

There are many advantages in having the worker follow through all the steps in the process. Slight variations of method, such as lengthening or shortening time intervals, choosing grades of paper for making prints, selection of filters, etc., can best be undertaken by an operator who has been familiar with every previous step in the procedure. Except for routine work for which well-established technique has been worked out, it will hardly pay to have such things as developing and printing done commercially or by anyone other than the photographer himself. He knows, as no one else can, just what he wants the picture to show, and he can vary one or more stages of the work so that the desired feature is brought out to best advantage.

Photomicrographic work begins and ends in the dark room. The arrangement of this important adjunct to the art will be more clearly pictured as the reader progresses, and since each worker has, or will develop, his own pet fancies as to the ideal layout, no detailed discussion will be pursued. Whatever else is done, adequate ventilation must be provided. Fittings which let through sufficient air, but which exclude light are available from dealers in photographic supplies. One other essential is an abundance of clean, running water.

Before any set-up of specimen can be photographed, whether through the microscope or otherwise, the plate holder must be loaded. Plates come packed in boxes of twelve, and the packages should only be opened in the safelight of a dark room—remembering that, for panchromatic emulsions, the usual red light is not safe. In this case the work should either be done in total darkness, or by the aid of a Series III green safelight. While a panchromatic plate is sensitive to green, it will be comparatively safe in a green light of very low intensity. The eye is very sensitive to such a light, and hence can see quite easily by this illumination. This safelight should not, as a rule, shine directly onto the plate.

Ordinarily the plates are packed in pairs, face to face, with the exception of the first and last plate. If a safelight can be used, the dull side of the plate is the emulsion side. If no light is available, the emulsion side of the plate is sticky to the touch of a moist finger.

The dark slide of the plate-holder should be withdrawn almost entirely, and turned so that the white face of the metal binding is outermost. Be sure that the plate is securely fastened in place by means of both clips, and is emulsion-side out. Close the dark slide and *lock it in position* by means of the rotatable L-shaped hooks provided for this purpose. Make it a cardinal rule to lock the dark slide in place *whenever* a plate is in

*Article I, "Possibilities of Microscope in Textile Industry," April 27, 1929; Article II, "Types of Microscope Applicable to Textile Industry," May 18; Article III, "Handling the Microscope with Efficiency and Understanding," June 22 and June 29; Article IV, "Methods of Illumination," Aug. 17; Article V, "Useful Accessory Equipment," Sept. 21; Article VI, "Textile Micrometry," Oct. 26; Article VII, "Mounting Textile Specimens," Dec. 14 and Dec. 21, 1929; Article VIII, "Preparing Cross-Sections of Textiles," Jan. 18 and Feb. 15, 1930; Article IX, "Recording Data," May 24 and May 31; Article X "Photomicrographic Apparatus," Aug. 16 and Aug. 23.

the holder (Fig. 1). This simple precaution will avoid many sad experiences with light-struck and wasted plates. The white side of the dark slide being outermost, and locked indicates the presence in that side of the holder of an unexposed plate. Most plate-holders carry one plate on each side. A good plan is to place a sticker on the face of the wooden frame of the holder, on which can be recorded any data needed to identify that particular picture.

When the simpler photomicrographic units, such as those of Figs. 1, 2, and 3, Art. X (Aug. 16, 1930) are used, the position of the camera is fixed; but when there is an opportunity to place the camera either vertically or horizontally, the position to use must first be decided upon. Obviously, if the camera is vertical, the microscope must also be vertical; and since when it is so arranged, its stage is horizontal, dry preparations and liquid mounts may be conveniently handled. It will also be apparent that since a portion of the space which is theoretically possible of occupation by the camera frontboard; will have to be filled by the microscope, it will not be possible to place the focusing screen of the camera as far away from the microscope as it would if the apparatus were in a horizontal position. Thus, the magnifications obtainable in the latter case are somewhat greater than in the former.

Whichever set-up is adopted, it will be necessary to line up the entire optical system, and to insure that the planes of lens and plate in the camera are at right angles to the optical axis of the entire unit. To make such a setting with the more elaborate outfits requires many careful adjustments and, when once achieved, should not be disturbed again.

Aligning the Apparatus

The following procedure is recommended for aligning the apparatus: Remove all lenses between the light and the camera focusing screen. Insert a cross-hair eyepiece or an eyepiece on which has been fitted a pinhole diaphragm. While looking through the pinhole, adjust the illuminant until it is approximately centered. Place a medium-powered objective on the microscope and insert the substage condenser. If the condenser is correctly centered, the image of the light source will be seen in the center of the back lens of the objective. If this is not the case, the condenser should be centered by means of its adjusting screws. Remove the objective, close the diaphragm of the condenser to a very small opening, and place any auxiliary condenser required in position. This should be covered with a centered pinhole diaphragm. If this pinhole is not exactly on the optical axis of the microscope, no light will pass. Adjust the lens until the light which passes is at its maximum brilliance. Adjustment of the backboard of the camera is usually possible. Where this is the case, the cross-hairs on the focusing screen may be brought into coincidence with cross-hairs in a cross-hair eyepiece. Otherwise adjustment is provided for the microscope as a whole, and this must be correctly set before the foregoing procedure is carried out. As has been suggested, the technique is somewhat fussy, but when once the system is properly aligned, movement of any of the parts along the optical bed, or their insertion or removal, will not affect it.

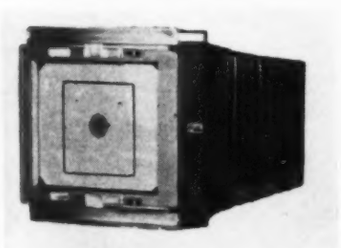


Fig. 3. Focusing screen showing the hairs and the plate-size outline

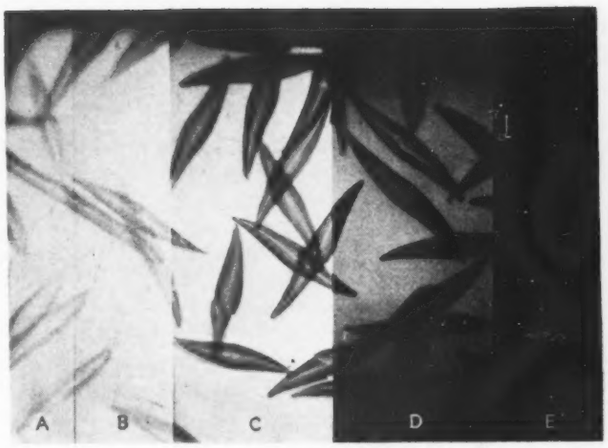


Fig. 2. Results of correct and incorrect exposure. A, greatly underexposed. B, underexposed. C, correctly exposed. D, overexposed. E, greatly overexposed

It is desirable to determine by experiment a suitable source of light, which shall be reasonably constant, and to use no other. The advantage in this procedure lies in the fact that, after determination of the correct standard time of exposure, it becomes easy to estimate or compute closely the time of exposure required under any condition which may arise. (Fig. 2).

A most satisfactory illuminant for the majority of the work has been found to be the high-powered illuminator (Fig. 3b, Art. IV, Aug. 17, 1929) which employs a 400-watt bulb and is equipped with large condensers and is readily adjustable on a special stand for both height and angle of inclination. This light will be found satisfactory both for transmitted and for incident, oblique illumination and will give reasonably short exposures.

The tungsarc lamp (Fig. 3d, Art. IV) may be used, if desired, but is not so flexible of adjustment, is comparatively short lived, and is difficult to handle.

For successful use of the apparatus under standard conditions, care should be taken that the illumination in every case where transmitted light is employed shall be "critical" (Art. IV, Aug. 17, 1929; p. 907). Unless this is done, the time of exposure as computed by the formula (to be discussed) will not be correct. After a certain amount of experience the operator becomes able to judge quite closely of the intensity of the light forming the image as seen on the focusing screen and may estimate the necessary time of exposure on this basis alone. This is not ordinarily safe practice and, at best, is a guess.

With the apparatus lined up, focus the illuminant so that a clear image of the filament or arc is visible on the under side of the substage condenser diaphragm, the latter being closed, and the condenser itself set approximately in position for critical illumination. Open the diaphragm to the best working aperture as judged from the quality of detail in the image which should appear, if the microscope is correctly focused at the center of the ground-glass focusing screen (Fig. 3). This screen should be arranged with a central clear spot carrying cross-hairs. If this is not already provided, a convenient construction is to cement to the center of

the under side of the screen a large size (1-in. diameter) cover glass carrying cross-hairs on the surface next to the screen.

Canada balsam makes a good cement; and its use ensures a clear central disk, since it will fill up the roughened surface of the ground-glass screen and provide a transparent opening. If the microscope is properly adjusted (Fig. 4), a focusing glass applied to the upper or outer side of the screen and focused on the cross-hairs on the plane to be occupied later by the emulsion side of the plate or film also should show the specimen in sharp focus. Manipulation of the fine adjustment will accomplish this. Do not expect to see all the detail which the negative is expected to reveal. Strive rather for sharp definition in the desired plane of the specimen. The camera shutter is, of course, open throughout.

Magnification may be increased by moving the backboard (and focusing screen) of the camera away from the microscope, or it may be decreased by bringing the backboard nearer. It will be found much more satisfactory to determine the magnification obtained by projecting the image of a *stage* micrometer through the microscope onto the screen and measuring it as described in Art. VI (Oct. 26, 1929), than to try to approximate the value by computation. It should be borne in mind that the intensity of illumination decreases rapidly as the magnification is increased.

Another factor which limits the allowable magnification is the area of the field covered by the plate or film. It is a good scheme to mark in pencil on the focusing screen (Fig. 3) the outlines of the plates to be used. If these pencil outlines are centered properly, there will be no difficulty in determining just what will be recorded on the negative. Since the size of a given plate cannot be altered, it is obvious that only sufficient magnification to bring the desired details within its confines is practical.

If it is desired to obtain a clear-cut circular field within the lines of the small plate, the frontboard (*E* and *F*, Fig. 5) of the camera can be moved back toward the backboard (*A* and *B*, Fig. 5) as far as it will conveniently go or until the size of the resulting circular field as seen on the focusing screen is correct. Evidently, this will not admit of the use of the usual light-tight connector between the microscope and camera, and for this reason (particularly if the camera is horizontal), care must be taken to avoid too much extraneous light. The room may be somewhat darkened, or a tube connector improvised to replace the regular unit.

The author believes that more satisfactory results can be obtained by using the apparatus normally, thus completely filling the plate, if necessary, and finally employing a suitable mask with the negative when printing, as will be described in a later article.

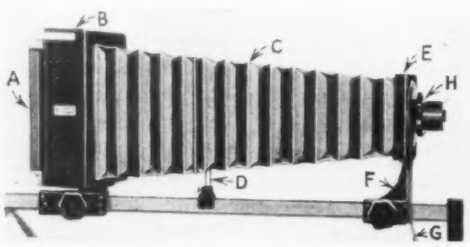


Fig. 5. Photomicrographic camera

Fig. 6. Shutter and mechanism

After the apparatus is in perfect adjustment and the focus is correct, as shown by close inspection of the clear glass disk with the focusing glass, the time of exposure should be decided upon. If it is one second or less, set the timing device *A* (Fig. 6), at the desired figure, move the shutter control lever to the position marked *M* (instantaneous), and throw the trigger *F* entirely over, thus setting the mechanism. It is advisable to test the action of the timing device by tripping the shutter with a very light pressure of the release *B* or *C* before inserting the plate-holder, or, at least before the dark slide has been withdrawn from the holder. If the shutter functions properly, reset the trigger and you are ready to expose the plate.

Place the plate-holder in position (Fig. 1) and make sure that the door of the camera is firmly closed and held in position by whatever locking device is provided (usually two clips). Taking care not to jar the camera, remove the dark slide entirely from the plate-holder, turn it over, and replace it with the *black* side of the index strip outermost. Insert it only far enough to hold it in position, but not far enough to obscure any portion of the plate.

An alternate procedure is to withdraw the slide and leave it out until after the exposure has been made. If this is done, care should be taken that when the slide is replaced and pushed home, the black side of the index is outermost. If this is not done, there will be serious danger of making a double exposure.

After the plate has been exposed and the dark slide properly replaced and locked, the plate-holder may be removed and the focusing screen replaced. Move the time control lever to the other extreme *T* (Fig. 6) and open the shutter for a final inspection of the image. This is wise precaution, because, in many cases, the appearance of the image may now be slightly different from what it was at the time of final focusing. Aside from any jarring of the apparatus on the part of the operator, which is inexcusable, it may be found that the specimen has been heated and that bubbles have appeared, or that the specimen has moved in the mount. Particular pains must be taken with paraffin mounts, especially of cross-sections by the quick method (Art. VIII, Jan. 18 and Feb. 15, 1930) and with liquid and dry mounts (Art. VII, Dec. 14 and 21, 1929). The illuminant, while it should remain constant, may have varied slightly, due to fluctuation in current or voltage, or for some other reason. If the image appears unchanged, the operator may be certain that the picture will not have been affected by any of these or kindred causes.

(*To be continued*)

Accurate Planning of Worsted Open Drawing *Essential*

By Frederick B. Hudson

MACHINES used in the open- and cone-drawing operations should be so organized that the production of the early processes provides enough work for the following machines.

Gilling is a slow process, but the material is thick and a large weight can be processed. It is the production of the gill boxes which determines the output of the set. For instance, the gill boxes produce 2,400 lb. of wool per week; therefore each machine in the set is adjusted to deal with that weight.

The correct speed for the finisher boxes is a big problem. With some wools they are run too fast, while with other materials they are run too slow. A finisher box which exceeds the average production of the set has to wait for deliveries from the preceding drawing box. This disturbs the morale of the shed. Idleness spreads like a contagious disease. Managers who find finisher operatives standing idle should check their plant for balanced production. Finishers which run too slow hold up the production of the set. This will cause standing time in the reducers. It is well known that slow finishing machines give the operatives a troublesome time. These people are apt to be discouraged by the tardiness of their machines.

The troubles of unbalanced sets of drawing are not set right by speeding up the reducers or slowing down the finisher boxes. The production must be distributed on a scientific basis. Every type of machine in the set should be given a full share of work.

Fiber movement is governed by fiber length. A 64s Australian merino wool with a 6-in. fiber would be moved 6 in. in each machine of the set. A Lincoln top with some 12-in. fibers can be made into a roving in five operations. A merino wool needs nine.

Particulars of an open-drawing set suitable for producing rovings from a 64s merino top are given in Table I. The 2.4-dram rovings would be spun into a 1/48s yarn with a draft of six. An interesting feature of these details will be found in the last column. The sliver enters the drawing set at 40 yd. to the pound. In its final form as a roving there are 4,260 yd. to a pound. The sliver has been reduced 106 times in diameter. This is shown in the next to the last column, as follows:

$$256 \div 2.4 = 106.$$

The material is also 106 times longer. This is shown by the particulars recorded in the last column, as follows:

$$4210 \div 40 = 106.$$

The machines are made with smaller parts as the diameters of the slivers are reduced. The decrease in pitch enables each machine to carry more spindles. Yet a further division is necessary and more machines are required. The details given in the third, fourth, and fifth columns of Table II illustrate these points.

In production calculations the distribution of spindles is ignored. The whole spindleage of one class of machines is taken as an entity. For example, the roving spindles are taken as 288, not nine groups of 32 each.

The pounds per week and the total number of spindles should agree; e.g., 32 finisher spindles each producing 75 lb. per week give a production of 2400 lb. weekly.

The distribution of the weight of material should be equally borne by all the machines in the class. The gill-box delivery rollers yield 2400 lb. per week. In the same way the delivery rollers of the rovers should yield 2400 lb. per week.

The gill boxes, however, have four rollers delivering 600 lb. each, while the rovers have 288 rollers each delivering 8⅓ lb. per week.

An accurate estimate of the output of a set of drawing machines is desirable. This can be expressed either by the weight or by the length. The better way is to use the length method in recording productions, as these particulars can be obtained automatically.

Indicators can be attached to the front rollers of all drawing machines. These record the number of yards delivered by the front rollers. It will be seen by referring to the next to the last column of Table II that the number of yards per week gives figures which are unsuitable for practical calculations. Convert these into worsted hanks, and a suitable number is obtained.

By means of an indicator (*Continued on page 70*)

TABLE I. DRAFTS AND DOUBLINGS FOR A 64S MERINO WOOL

Number of operation	Name of machine	Doubling	Draft	Drams per 40 yards	Yd. per lb. of sliver delivered
1	Can gill box	5	5	256*	40
2	Spindle gill box	5	5½	232	44
3	1st drawing box	4	5½	168	61
4	2nd drawing box	4	5½	122	84
5	3rd drawing box	4	5¾	86	121
6	1st finisher	3	6	44	232
7	2nd finisher	3	6	21	488
8	Reducer	3	6	7.25	1410
9	Rover	2	6	2.4	4260

*Top weight

TABLE II. OPEN DRAWING SET TO PRODUCE 2,400 LB. PER WEEK OF 48 HOURS, 64S MERINO

Number of operations	Name of machine	Number of machines	Spindles per machine	Total spindles	Lb. per spindle per week	Yd. per spindle per week	Hanks per spindle per week
1	Can gill box	Two	2 (heads)	4 (heads)	600	24,000	42.8
2	Spindle gill box	Two	2	4	600	28,400	50.0
3	1st drawing box	One	4	4	600	36,600	65.3
4	2nd drawing box	One	6	6	400	33,600	60.0
5	3rd drawing box	One	8	8	300	36,300	64.8
6	1st finisher	Two	8	16	150	34,800	62.1
7	2nd finisher	Two	16	32	75	36,600	65.3
8	Reducer	Three	32	96	25	35,250	62.9
9	Rover	Nine	32	288	8.33	35,486	63.3

OVERSEERS' ROUND-TABLE

THIS department offers a new subject for discussion each week and gives readers' comments on problems introduced during previous weeks. The subject which was opened four weeks ago is closed this week and a summary of contributed ideas is given on opposite page

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Overseers and a Bonus

Editor, Overseers' Round-Table:

I CAN'T see why a company should have to pay an overseer a bonus, in addition to his salary, in order to get the work done. An overseer is entitled to a straight salary and, in return, should give the company the best that is in him, regardless of a bonus.

When an overseer gets to the place that it takes a premium to keep him on his job, it is time to change overseers.

If a company wants to show its appreciation of an overseer's interest in his work by giving him a bonus, I don't think that any of us would object, but let it be unexpected and not put up as a goal to work for. P. A. WYNN,
Overseer Carding, Mandeville Mills.

Hiring a Discharged Employee

Editor, Overseers' Round-Table:

I AM in hearty accord with Bill in regard to firing and then re-hiring help. An overseer should never be too hasty about firing an operative. If he cannot discipline an operative without firing him how does he know he will get along any better with him after re-hiring? I think an overseer has better control over his help if they know that he never takes back a man he has fired.

If you re-hire a man the memory of firing him always remains and the incident has just as many chances to work against you as for you. If you cannot reform a man when he is on the job do not expect him to reform himself while he is off the job. He may be smart enough to be more deceptive and keep things covered up. If you are going to re-hire, then why fire at all? Why not lay the operative off for a week or two as punishment for wrong doing? I do not care how good a hand is; when I have reached the conclusion that I have to fire him then I am through with him for good. I would rather train a stranger than give the operative who has been fired the idea that I cannot get along without him.

There are plenty of ways to discipline help without firing them. The key to these ways is to be a man yourself and know your help. GEORGE.

Editor, Overseers' Round-Table:

BILL IS pretty close to being right. Once a worker is discharged, let him remain discharged. The re-hiring of fired help is one of the greatest pitfalls an overseer can fall into and, whether he knows it or not, it breaks the morale of the concern and places his authority on a pretty low basis. It has been done to good advantage but only once out of every hundred times.

About Employing Re

"I'VE a kid brother," Superintendent Chase addressed the overseers, "who is about to start work and I was discussing with him the other night whether he should work in this mill or some other mill. I guess there is much to be said both for and against employing relatives and, as you men have the same problem in your departments, I have been wondering what your ideas are on the subject."

"I have never been able to see any harm in employing relatives in my department," Bill spoke up, "and I can see quite a lot of good points. Of course, no overseer can get along if he shows out-and-out favoritism to relatives, but if the rest of the operatives know that the overseer gives everyone an even break you won't have any trouble along these lines. Now for some of the good points. It's pretty important to have your help work with you and if you have a couple of relatives scattered around they can sort of talk things over with the other workers and keep the right kind of cooperation going. Without being spies they can tell you what the workers think of certain things which you do, and that's very useful because you often do or say things which the help get a little peeved about because they don't understand. Most of the time you don't even know that they are peeved, but when a relative slips you the news you can straighten things out.

"Then there are the youngsters," Bill continued, "who are learning their trade. I think it is much better for them to work under a relative who can give them a helping hand now and then and see that they are going along the right track. It's all very well to talk about going out and making your way in the world without help from anyone, but life's pretty short and tough and I think relatives ought to stick together and help one another all they can."

"I'm not at all in favor of employing relatives," Pete came back, "because I don't think it is fair to either the overseer or the relative. It isn't fair to

As I view the situation the overseer is the head of the department and it is his duty to get quantity and quality, to maintain repair service, to furnish materials and to maintain discipline. If he finds that the employees are disobeying him and flouting his authority he should warn them once, with the understanding that a second offense would prove final. If they offend a second time, after due warning, they should be fired and not re-hired. After this has been worked out once or twice the overseer will find that his department has improved 100%.

The overseer by doing this will impress upon the employees that he is a man of his word and they will trust him accordingly. The chaff in the organization will either be

Relatives

the overseer because, no matter how just he is, people will always suspect that he shows some favoritism to his relatives and the other workers will be inclined to lay down on the job and alibi themselves by saying 'Oh, nobody but a relative of the overseer ever gets praised in that department.' Then there is the fact that if an overseer bawls out a relative in a businesslike way he is likely to start a family squabble.

"It isn't fair to the relative," Pete went on, "because all the other workers look on any relative of the overseer as sort of spy and don't talk freely for fear the story will be carried to the overseer. Then if the relative has real ability and gets promoted most everyone will say it is pull that did it and the poor relative doesn't get proper credit for being a good worker. I think you will also find that a relative gets a worse deal than the others, in many cases, because the overseer is so anxious to appear fair that he leans over backwards and doesn't give the relative as much of a chance as he gives the others. All told I think you are just fixing to get yourself in a lot of trouble when you hire one of your relatives."

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Do *you* think that an overseer should hire his relatives to work in his department?

Overseers and others are invited to discuss this and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

winnowed out permanently or educated to their position. The overseers' authority will be undisputed and his word law.

R. E. BALLARD, Ballard Silk Co.

Editor, Overseers' Round-Table:

YOUR OVERSEERS' Round-Table is ever more interesting to all of us. Even if we do not take active part we always have lengthy and interesting discussions among ourselves. The question of hiring back a discharged employee is one that I cannot pass over without giving my opinion.

If a worker is fired for insubordination, like the fellow Hank spoke about, it seems to me that he would have stayed out a long time before I would have hired him back. Before firing him, if he was a good worker, as Hank pictured him to be, I would have talked to him first and tried to put some sense into him, but if he did not change his ways and had to be fired he would have stayed fired, because I am quite convinced that a man of that kind would start trouble again. As Bill said, rehiring discharged employees, especially so soon after being fired, is not good for discipline and is a bad example for the rest of the workers.

I do not want to create the impression of being hard boiled, and I agree with Bill that firing a worker is a serious thing. I like to talk to my men even when they do things they should not do and make them see that they are a part of the whole organization, but when anyone like Henry begins to feel that he is too good to be dispensed with, and starts making so much trouble as to deserve being fired, for the good of the organization, my opinion is to let him stay fired.

N. D. B.

Presents to Overseers

Editor, Overseers' Round-Table:

IN THE matter of Xmas presents being given to overseer by employees I am very much in accord with all Pete's arguments against the practice.

The custom was discontinued in my department several years ago when I instructed my assistant to tell the sponsors of such action that they should spend their cash on presents for their children or themselves. The pay of textile employees is little enough and, as a rule, they cannot afford extra gift donations.

It often happens that, after the gift is presented, one or two of the employees will tell the overseer of a certain individual who didn't donate. This sometimes has a bad effect, even though the individual's action of not contributing may not have been caused by prejudice.

CARDER.

Editor, Overseers' Round-Table:

I CANNOT see any harm in the help giving the overseer a Christmas present.

The help work for their money and they have a right to spend it as they please. Passing a rule that they cannot give a gift if they want to is taking away their rights.

I do not believe in the help giving to an extent that it will deprive them of something they need, but let each person give what they feel they can afford. I think it creates a better feeling between the help and the overseer to give a small gift, and I know it makes an overseer feel good to know that his help think enough of him to give him a present, no matter how small it may be.

K. R. CLEMENT
Dominion Yarns, Ltd., Canada

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Summary of Discussion on a Bonus Plan for Overseers

The vote was over two to one against any plan by which the overseers were paid on a task and bonus basis, the actual percentages being 68% against and 32% favorable. The principal arguments against the bonus were that it encouraged quick work at the expense of the quality and that the overseer was in a better frame of mind to cope with his many problems if he was on straight salary. Those favoring a bonus plan stated that it was the best incentive to hard work and repaid hard work in tangible form. Several contributions spoke in favor of a profit sharing plan at the end of the year.

NEWS about MEN

JOHN A. LAW, president of Central National Bank, Spartanburg, S. C., also head of the Saxon Mills and the Chesnee Mills, was reappointed director of the Charlotte branch of the Federal Reserve Bank at a meeting of the directorate held in Washington this week. Mr. Law was named for a period of three years, beginning Jan. 1, 1931.

DAVID GESSNER, president of the David Gessner Co., Worcester, Mass., and MRS. GESSNER, sailed from New York on the S. S. "Bremen" on Dec. 5 for a visit to his old home in Germany.

BLAKE EDMUNDS, prominent cotton merchant of Columbia, S. C., was married to MISS FRANCES WESTON, also of Columbia, last week.

At the annual meeting of the Androscoggin Valley Mill Men's Association, the following officers were elected for the ensuing year: THOMAS D. CRUMLEY, Androscoggin Mill, president; H. A. LANDRY, Cowan Mill, vice-president; ARTHUR CLOUTIER, Lewiston Bleachery, secretary; J. W. R. MORRISON, Bates Mill, treasurer. Directors: GEORGE A. BOWER, Bower Mill; CHARLES LABONTE, Androscoggin Mill; JAMES A. DAWBER, Bates Mill; JAMES ROBERTSON, W. S. Libbey Co.; PERCY PLUMMER, Lisbon Spinning Co.; HENRY O'DONNELL, Cowan Mill; THOMAS NORTON, Hill Mill; EDWIN W. ADAMS, Lewiston Bleachery; GORDON PARK, Park Woolen Co., and JOHN BURGESS, Cabot Mill.

CHARLES J. ESTERLY, U. S. Congressman, who is associated with the Berkshire Knitting Mills, Reading, Pa., was on Dec. 6 elected chairman of the Republican County Committee for Berks County, Pa.

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J. LEE ROBINSON, president of A. M. Smyre Mfg. Co., Gastonia, N. C., at recent dedicatory exercises of the new large two-story brick community building in this mill village, which was designed by MARSHALL DILLING, general superintendent of the company's plants, presented the building to the people of the mill villages. F. L. SMYRE, treasurer and COL. T. L. CRAIG, of the board of directors, also spoke briefly. MRS. S. A. LANIER is director of community activities in the several mill villages of the company.

JOHN SANFORD, head of the Bigelow-Sanford Carpet Co., Amsterdam, N. Y., and family, will pass the winter at Palm Beach, Fla.

A. B. CRANWELL has been made president of the Cranwell-Lee Hosiery Mills, formerly the Pikeville (Tenn.) Hosiery Mills. CHARLES GUNN is superintendent of the plant.

ROBERT WYDER, president of the Textile Dyeing Co. of America, Inc., Hawthorne, N. J., has returned from a ten weeks' trip abroad.

BENJAMIN SCHWARTZ has been appointed as the impartial arbitrator and Trade Relations Counsel of the Canvas Coat Front Exchange, Inc., and the Interlining Manufacturers' Association, Inc., it was announced at a banquet of both organizations on Dec. 10, at the Broadway Central Hotel, New York. DANIEL BERSIN, president of the Canvas Coat Front Exchange, Inc., presided.

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Samuel A. Salvage, president of the Viscose Co., returned from Europe Dec. 15 on the S.S. "Mauretania," having attended a conference of rayon producers in London. He spoke optimistically of the Rayon outlook.

FRANK H. WILLARD, president of the Graton & Knight Co., Worcester, Mass., was master of ceremonies at a dinner at the company's restaurant tendered WILLIAM C. ZEPP, an employee, on Dec. 10, in honor of his winning the national six-mile title, New England Cross Country crown and the New England ten-mile road championship.

S. A. ROBINSON, Gastonia, N. C., has been elected to succeed A. K. WINGET, of the Armstrong chain of mills, as president of Gaston County Textile Manufacturers Association.

DR. GEORGE OTIS SMITH, director of the U. S. Geological Survey since 1907, has been chosen by President Hoover to be chairman of the New Federal Power Commission. FRANK MCNINCH, of North Carolina, former mayor of Charlotte, was nominated for the remaining place on the committee. The three other members were nominated prior to the close of the last session of Congress. They were: FRANK B. WILLIAMSON, of Washington; COL. MARCEL GEREAUD, of Louisiana; and CLAUDE L. DRAPER, of Wyoming.

WALTER TOY, vice-president of Scott & Williams, Inc., arrived in New York on the steamer "Majestic" last week after a business trip to Europe.

STEWART WILLIAM HEATH, prominently connected with the South Carolina Cotton Growers' Association, of Columbia, S. C., was married to MISS ELIZABETH CANTEY, of Columbia, last week.

FREDERICK H. BISHOP, vice-president of the Universal Winding Co., Boston, who is a veteran of the Civil War, received further honor from the Grand Army of the Republic last week when he was elected junior vice-commander of the Massachusetts Department. Some time ago he was elected commander of the Paul Revere Post No. 88.

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T. HOLT HAYWOOD, with offices in Winston-Salem, N. C., chairman of board of Haywood, Mackay & Valentine, Inc., of New York, and representative in the South of Commercial Factors Corp., of New York, has been elected a director of the Wachovia Bank & Trust Co., of Winston-Salem, N. C.

H. E. MACHOLD, vice-president of the Skenandoa Rayon Co., Utica, N. Y., is on a combined business and pleasure trip to the Pacific Coast.

IRVING HARDER is now secretary of the Pilot Hosiery Mills, Asheboro, N. C.

C. CLIFFORD LYMAN, formerly assistant manager of replacements division of the Russell Mfg. Co., Middletown, Conn., has been appointed office manager. F. A. GERARD was named to succeed Mr. Lyman as assistant manager of the replacement division. R. W. CONROY was appointed head of the Pacific Coast Division of the Russell Mfg. Co.

C. H. EAGER, JR., was recently appointed superintendent of the mercerizing department of the Standard-Coosa-Thatcher Co., Chattanooga, Tenn.

CLAUDE C. CARNES, of Lancaster, S. C., who has been connected with the National Aniline & Chemical Co., of Buffalo, N. Y., where he has been doing special control and research work on synthetic indigo, has resigned to accept a position as control and research chemist for the National Electro-Chemical Co., Ambridge, Pa.

E. A. BYRUM, of High Point, N. C., will be general manager in charge of operations of the Byrum Hosiery Mill, full-fashioned silk hosiery, which will open in High Point in the near future.

C. C. ROBBINS, JR., has been made superintendent of the Robbins Knitting Co., High Point, N. C.

Frederick Flather, Jr., of Boott Mills, Lowell, Mass., elected treasurer of the National Association of Cotton Manufacturers, at the last meeting of the executive committee, subject to the approval of the board of directors. He is a son of Frederick A. Flather, treasurer of Boott. He succeeds W. Irving Bullard in the N.A.C.M. post.

WILLIAM ZOPSI, head chemist for the Slater Co., Inc., Webster, Mass., is planning to leave shortly for a three months' trip to Switzerland. He was given a farewell party on Dec. 9 and presented a purse of gold by his associates.

H. H. ELLINGTON, formerly of Knoxville, Tenn., is now night overseer of weaving at the Enterprise (Ala.) Cotton Mills.

E. B. HAMBLER has accepted the position of superintendent of the Archer Hosiery Mills, Columbus, Ga.

W. P. GALLOWAY, an employee of the Alice Mfg. Co., Easley, S. C., has received a textile evening school diploma, for which he worked for seven years at night schools. This is the fifteenth diploma of this kind to be issued in the state.

W. H. HAZEL is now superintendent of the Waldensian Weavers, Valdese, N. C.

H. E. HOMBERGER has accepted the position of superintendent of the West Knitting Co., Wadesboro, N. C.

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VANCE MCKINNEY is now superintendent of the Asheville (N. C.) Knitting Mills, Inc.

G. W. MEDLOCK recently resigned as night overseer of spinning at the Enterprise Cotton Mills, Enterprise, Ala., and he has been succeeded by H. C. KNIGHT, who was promoted to that position.

A. O. PEOPLE, formerly of Alexander City, Ala., is now overseer of weaving, at the Enterprise (Ala.) Cotton Mills, and H. H. ELLINGTON, of Knoxville, Tenn., has been appointed night overseer of weaving in the same plant.

Russell T. Fisher, reelected secretary of the National Association of Cotton Manufacturers. Mr. Fisher is also joint secretary and assistant treasurer of the National Council of American Cotton Manufacturers. Mr. Fisher has served as secretary of the National Association of Cotton Manufacturers since late in 1925.

ROY RIGGS is now superintendent of No. 10 plant of the Cannon Mills, Concord, N. C.

Obituary

John A. Perkins

John A. Perkins, agent of the Harmony Mills, Cohoes, N. Y., died Dec. 12 at the Peter Bent-Brigham Hospital, Brookline, Mass., after an operation. The funeral was held in Troy on Dec. 15 and final interment will be at Calais Cemetery, Calais, Me., next spring.

Mr. Perkins was born at Alexander, Me., Dec. 14, 1862. He began his career in 1880 in the cotton mill of the Lawrence Corp., Lowell, Mass. He then went to the St. Croix Mill in New Brunswick and later was with the Pacific Mills of Lawrence. He was overseer of weaving at the Naumkeag Steam Cotton Co. at Salem and left there to become superintendent of the Atlantic Mills at Lawrence. For four years Mr. Perkins was general superintendent of the Utica Steam & Mohawk Valley Mills at Utica and for the last 14 years has been agent of the Harmony Mills, Cohoes.

He served for some years as a director of the National Association of Cotton Manufacturers and as the association's representative on the Textile Safety Code Committee of the National Safety Council. He was a director of the Manufacturers' Bank of Cohoes, a director in the Associated Industries of New York State, and a past president of the Textile Club in Boston, Mass. He was a member of the Cohoes Rotary Club, Cohoes Lodge of Elks and the Masons in Cohoes. His widow and five sons survive.

Samuel H. Roberts

Samuel H. Roberts, secretary of the American Cotton Waste & Linter Exchange for many years, died at his home in South Attleboro, Mass., Dec. 14, after a short illness. He was born in Smithfield, R. I., 62 years ago, and was a graduate of the first class of Pawtucket High School in 1886. He was City Clerk of Pawtucket, R. I., for 12 years, resigning in 1907 to become purchasing agent for the Sharp Mills, New Bedford, Mass. Later he became agent for the Merrimac Utilization Co., and secretary of the Cotton Waste Exchange, of which he was a charter member. Funeral services were held in Pawtucket on Wednesday, Dec. 17, and a committee representing the exchange attended.

Edward Lewis Converse

Edward Lewis Converse, for the last 20 years paymaster for the M. J. Whittall Associates, Ltd., Worcester, Mass., and an employee for 28 years, died suddenly from a heart attack at the wheel of his automobile while returning home from the plant on Nov. 24. He was born in Athol, Mass., on July 2, 1872, and when eight years old moved with his parents to Worcester.

Frank Rich

Frank Rich, who succeeded his father as overseer for the Putnam (Conn.) Woolen Co., which position he held for many years until his retirement some time ago, died suddenly at his home in that city recently, after a short illness. He was 70 years old, a native of Trowbridge, England, and when a small boy came with his family to the United States. He had lived in Putnam 50 years. He leaves a widow and two married daughters.

Mayhew B. Caton

Mayhew B. Caton, aged 35 years, overseer in the finishing and shipping department of Wiscassett Mills Co., Albemarle, N. C., fell into the Pee Dee River near Albemarle and was drowned. He is survived by his widow and two young children.

John Connor

John Connor, until recently head of the designing department of the Mohawk Carpet Mills, Amsterdam, N. Y., died last week after an illness of a few weeks. Before coming to this country he was connected with the designing department of William C. Gray & Sons, Scotland, and he also saw service with the James Templeton Carpet Co. in England.

Frank W. Adams

Frank W. Adams, head machinist at the Monument Mills Co., Housatonic, Mass., died Dec. 5 at the House of Mercy Hospital, Pittsfield, following an extended illness. He was born in Alford 72 years ago and was a machinist at the mills for many years.

NEWS about MILLS

Cotton

Thomaston, Ga. A few of the local mills have increased the production schedule recently. **Thomaston Bleachery** is running full-time, as well as the **Peerless Mills.** The **Aldora Mills** are running four days, while the **Thomaston Cotton Mills** are running four and one-half days each week. It is expected that all local plants will shut down for the entire week of Christmas.

Eagle & Phoenix Mills, Columbus, Ga., have increased operations to five days per week. They had been running three and four days. **Bibb Mfg. Co.** is running two days per week, while part of its equipment operates three days.

Whitman Mills, New Bedford, Mass. Judge Louis S. Cox, Superior Court, has refused to appoint a receiver for this company, and has also declined to appoint a master to hear the case brought by a group of stockholders.

Fall River, Mass. The speeding up of production by the **Firestone Tire & Rubber Co.** at Akron, Ohio, has been followed by the **Firestone Cotton Mills** of this city and New Bedford having increased operations by putting on 250 additional operatives at each plant. The extra operatives, however, were put to work through a cut in the hours of labor, six-hour shifts now being employed instead of the former eight-hour schedule. The mill is being run on a day and night basis. The **Border City Mfg. Co.** has also increased its production through putting on 300 additional looms during the past week.

***Lancaster Mills,** Clinton, Mass., have sold at private sale their former office building to the town of Clinton, for use as a pumping station, for approximately $5,500. An auction sale of the entire real estate holdings of the mills was conducted on Dec. 10 by Samuel T. Freeman & Co., Boston and Philadelphia. On the first day seven out of the 19 parcels offered brought $14,650. This included several parcels of land, some with houses, but none of the mill buildings. Two parcels were withdrawn, and no bids were received for the others. Failure to obtain a bid for any of the real estate will result in a meeting of the directors of the corporation shortly which will be followed by a meeting of the stockholders when they will be informed of the failure of the proceedings and will be asked for further instructions relative to the manner of disposing of the plant.

***Tombigbee Cotton Mills,** Columbus, Miss., reopened their plant on Dec. 8, following a shutdown of several months. Immediate operations will be about one-half of normal capacity, with gradual advance to full production after the first of the year.

Manchester, N. H. Of the 7,500 persons on the **Amoskeag Mfg. Co.'s** payroll at present, 5,000 are working a full week.

Burlington (N. C.) Mills, Inc., of which J. Spencer Love is treasurer and manager, recently purchased 4 52-in. shuttle changing rayon looms, 50 44-in. shuttle changing rayon looms, and 34 48-in. 2x1 box-type silk looms from the Stafford Co., Readville, Mass. The above looms are being installed in addition to 54 44-in. slightly used Crompton & Knowles Gem-head 2x1 silk looms which were purchased recently, making a total of 142 looms being added to the mill's present equipment.

Granite Falls, N. C. B. B. Blackwelder, general manager of the Shuford group of mills, announces that about Jan. 1, the mills will begin operations on full-time basis. For some time the **Granite Cordage Co.** and two divisions of the **Granite Falls Cotton Mills** have been operating on a five-day a week basis. The other Shuford mills plants are located at Hickory, N. C.

Ranlo Mfg. Co., Gastonia, N. C., is now running on a full-time production schedule and will hold to that basis for an indefinite period. The mill was on a curtailed schedule for a number of weeks.

Greensboro, N. C. The **Proximity, White Oak** and **Revolution** mills, will close for the Christmas holidays, Dec. 19, and resume operations Dec. 29.

Raeford, N. C. According to an announcement made by Warren S. Johnson, of Wilmington, N. C., receiver for the **Raeford Cotton Mills,** bids for these mills will be received Dec. 20. This property consists of several tracts of land owned by the Raeford Cotton Mills in Hoke County, at or near Raeford, including the land, the mill plant with cotton mill, machinery, fixtures, furniture and equipment of every kind and description belonging to the mills.

Aragon-Baldwin Cotton Mills, Inc., with plants at Chester, Whitmire, and Rock Hill, S. C., are operating at full capacity.

***Bowling Green (S. C.) Spinning Mills,** which were recently purchased at a receiver's sale by M. L. Smith, manager of the Hampton Spinning Co. of Clover, S. C., and associates for $50,000, have had the sale confirmed by the courts and it is thought that as soon as the machinery can be overhauled and put into excellent condition, the plant will resume operations, which will be some time this month. D. B. Parrish of Clover will be the new superintendent. This plant formerly operated 5,040 spindles and manufactured 24s to 30s knitting yarns. It was not announced what the plant would manufacture in the future.

Arkwright Mills, Spartanburg, S. C., shut down indefinitely on Dec. 15, according to announcement of McFarland Cates, an executive of the mill. Approximately 300 workers were affected. Operations at the plant will be resumed when the cloth market is more favorable, according to Mr. Cates.

Gibson Mill of **Canadian Cottons, Ltd.,** Marysville (N. B., Can.), inaugurated a five-day week schedule on Dec. 8, replacing a four-day week operating basis, prevailing for some time past. The new schedule will be continued for an indefinite time.

Dominion Textile Co., Ltd., Montreal (Que., Can.), is operating at close to 90% capacity at its different mills, and expects to continue on such basis for an indefinite period. This is the highest level of operation of the plants for several years.

Miller Textile Mills, Nuevo Laredo, Mexico, across the Rio Grande from Laredo, Texas, were entirely destroyed by fire, Dec. 6, with a loss of $110,000, and insurance of $60,000. Bryan Miller of Laredo, Texas, is president and general manager of the mills.

Wool

Uxbridge Worsted Co., Inc., Lowell, Mass., is operating day and night with three full shifts, employing a total of 250 persons, according to William J. Thornley, agent. The mill is turning out approximately 95,000 yd. of fancy suitings a week.

International Worsted Mills, Inc., Methuen, Mass., a New York corporation, have filed notice of change of company name to the **Murch Worsted Mills, Inc.**

Felters Co., Millbury, Mass., on Dec. 8, went on a six-hour, five-day per week operating schedule until further notice.

Horner Brothers Woolen Mills, Eaton Rapids, Mich. Officials of this company, headed by E. E. Horner, president, have organized a new subsidiary under state laws, to be known as **Horner Brothers Woolen Mills Sales Co.,** with nominal capital of $5,000. New interests will handle sales of local mill. R. G. Toncray, Eaton Rapids, is one of the incorporators.

Archibald Holmes & Son, Philadelphia, Pa., have sold their mill at Allegheny Ave. and A St., to the Philadelphia Storage Battery Co., Philadelphia, which will use it for another line of production. Holmes organization is removing their plant to a new mill at

**Indicates previous mention of project.*

Erie Ave. and K St., where former capacity will be increased.

Monadnock Blanket Mills, Marlboro, N. H., started on a full-time production on Dec. 8, replacing a three-day week basis, operative for some time past. It is expected to increase the present curtailed working force at an early date.

Clear-Spring Worsted Mills' (Doylestown, Pa.) plant and equipment were destroyed by fire Dec. 13, with loss of more than $250,000. No plans for rebuilding have been announced by Crosley Holmes, president and general manager.

Montreal, Que., Can. David Hield, of Hield Bros., worsted and serge manufacturers of Keighley, England, is expected in Canada this month for the purpose of securing a location for that company's proposed Canadian plant. It is the intention of the company to begin with 100 looms. George Peterson & Co., of Montreal, are Canadian representatives.

Paton Mfg. Co., Ltd., Sherbrooke (Que., Can.), woolen yarns, tweeds and overcoatings, has adopted a 100% capacity production basis and will continue on that schedule for an indefinite period.

Knit

Camilla, Ga. A. G. Whitehead, Valdosta, Ga., has awarded a contract to Charles Jackson, Camilla, for the erection of a one-story knitting mill on the Dixie Highway, where tract of about one acre of land was recently acquired.

Fulwear Hosiery Mills, Columbus, Ga., recently organized, are running day and night shifts.

American Textiles, Inc., Mount Vernon, Ill., have awarded a general contract to W. N. Atkinson, Mount Vernon, for a two-story addition to local mill, 80x100 ft., to cost about $40,000, with equipment.

***Gotham Silk Hosiery Co.,** Dover, N. J., has reopened its local mill following recent temporary closing, and the proposed resumption on Jan. 5, has been advanced considerably. About 60 operatives for knitting machines are being employed, with group of auxiliary workers. The company's mill at Wharton will resume about Dec. 22, as previously reported.

Newark (N. J.) Knitting Works have filed plans for a one-story building adjoining plant on South 13th St., to be used for garage and storage service, estimated to cost about $5,000, without equipment.

Thermo Mills, Inc., West Sand Lake, N. Y., have acquired the business of Grushlaw & Sichel, of Germantown, Pa., which will be consolidated with the mills here and at Hudson.

May Hosiery Mills, Inc., Burlington, N. C., expansion program is getting well under way. Additional machines are being installed in their full-fashioned department.

**Indicates previous mention of project.*

Tryon, N. C. C. A. Dargen, who operates a small hosiery mill at Tryon, announces he will move his plant and equipment to Clinton, S. C., the first of the year. He has leased a two-story brick building to house the outfit. E. J. Adair, Clinton business man, will be associated with Mr. Dargen in operating the mill.

Durable Knitting Mills, Philadelphia, Pa. Charles E. Dearnley has been appointed temporary receiver for this company, in bond of $50,000.

***Nu-Craft Hosiery Co.,** Mohnton, Pa., which last week announced the purchase for $45,000 of the **Charles Steiner** silk mill, 940 Spruce St., Reading, for conversion into a silk hosiery finishing and distributing station, has bought through Max Fisher, Reading attorney, the **Wagner Hosiery Mill, Curwensville, Pa.,** for $175,000. The mill will form part of a chain of six plants which Charles A. Stevens, of the Nu-Craft company, and his associates are forming in Pennsylvania. The Steiner plant will dye and finish the product of the hosiery mills. Silk throwing machinery will be operated in the plant. One of the Nu-Craft properties is the **West Chester (Pa.) Hosiery Mills**, only recently built and put into operation. Arnold & Smith, Clearfield attorneys, represented the Wagner company in the Curwensville deal.

Mountain City Knitting Mills, Chattatanooga, Tenn. Fire recently damaged a portion of this plant. An official estimate of loss has not been announced. The damage will be replaced.

Logan (Utah) Knitting Mills, Inc., have merged with the **Cache Knitting Works, Inc.,** Logan, Utah.

Holeproof Hosiery Co., Milwaukee, Wis., will operate through the holidays without the usual week's shutdown, according to the local office of the firm, which reports the plant is operating with more knitters and turning out more goods than during any previous December.

Silk

Jennings Silk Co., Holyoke, Mass., has installed 60 additional looms in its new quarters on Canal St., and is to add 25 more, giving 225 looms in all for the production of silk novelties, for which it has large unfilled orders.

Haskell Silk Co., Portland, Me., has closed its plant at Westbrook for an indefinite period. There has been a gradual decline in the company's output since Nov. 1, resulting in the laying off of 140 workers.

Duquesne Silk Mills, Inc., Paterson, N. J., recently formed with capital of $125,000, to operate a local mill, will be represented by Harry Joelson, 152 Market St., Paterson, an attorney. Max Smith, Paterson, is principal incorporator.

Mercer (Pa.) Silk Mills, manufacturing rayon fabrics, are operating all of the 40 looms at the plant, for the first time since 1923, according to Harry Zweifel, president.

Lehigh Valley Silk Mills, Williamsburg, Pa., which have been shut down for five months, resumed operations Dec. 13 with a force of 50, to be increased to 125 within a week. The company's largest plant is at Bethlehem, Pa. Two other mills, one at Lansford, Pa., and the other at Fountainhill, Pa., now are in operation.

New System Textile Service Co., Pawtucket, R. I., rayon converters, have moved their plant from 27 Mason St. to 121 Bacon St., Pawtucket.

Kingsport (Tenn.) Silk Mills will install much new machinery, nine carloads having been shipped from New York and will be installed as soon as it arrives.

Welwood - McMinnville Silk Mills, Inc., McMinnville, Tenn., have arranged for a change of company name to the **Welwood Silk Throwing Mills, Inc.**

Cumberland Silk Mills, Rockwood, Tenn., began weaving operations in their new mill Dec. 10. The product will be shipped from Rockwood to the New York selling office of Rieback & Mandell. The New York interests operate several eastern mills, which they plan to move to southern locations. The Rockwood plant is the company's second in the South, the first being erected at Brewton, Ala., in 1929.

Brupbacher Silk Mills, Ltd., Valleyfield (Que., Can.), are now operating 72 Crompton & Knowles looms recently purchased. As stated by the superintendent, the plant will soon be running on 12 looms to a weaver, with not less than 85% production.

Rayon

Courtaulds (Canada) Ltd., Cornwall, (Ont., Can), have awarded the contract for the erection of its addition to the Foundation Co., Ltd., Montreal, Que. The addition will be one story, 150x450 ft., and will increase the capacity of the company by 30%. Further important plans are under consideration by the company to increase the production of warps and weaving yarns.

Finishing

Apex Piece Dyeing Co., Paterson, N. J., has awarded a general contract to J. H. Steele & Son, 42 North Second St., Paterson, for a two-story rear addition to dye house, 60x80 ft., reported to cost close to $30,000, with equipment. John C. Van Vlandren, 140 Market St., Paterson, is architect.

Radiance Piece Dye Works, Inc., Prospect Park, N. J., have begun excavations for a one-story dye house, 50x200 ft., on East 25th St., Paterson, N. J., reported to cost about $35,000, with equipment. Contract for masonry work has been let to E. Verduin, 480 East 34th St., Paterson. Elliott R. Coe, 136 Washington St., Paterson, is architect.

Questions and Answers

We undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to TEXTILE WORLD. We do not undertake, however, routine analysis of yarn or fabric, or investigation involving unusual expense.

Inquiries should give the fullest information and data possible. In the case of damage to material, a sample should be sent. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as evidence of good faith.

Letters expressing opinions or voicing criticism are cordially invited. These will be signed by the correspondent's name unless the letter itself contains a request that the name be withheld.—EDITOR.

Finding Number of Tram Ends in Pure Thread Silk Stocking

Technical Editor:

Will you please let us know the best method for determining the number of tram ends in a pure thread silk stocking? (7409)

A very convenient method for determining the number of tram ends in a pure thread silk stocking makes use of a velvet-covered board, a pick glass, and two scribers. The procedure is to lay the strand of silk over the velvet-covered board and split the individual filaments approximately in half. Place the pick glass over the split portion. Use one scriber for separating and drawing to one side the individual filaments, and with the other scriber hold the strands already counted. With a bit of practice, it is fairly easy to separate, draw aside, and catch with the other scriber without losing those already counted. It is suggested that the filaments be counted in several places and an average taken.

When the number of filaments has been satisfactorily found, divide by twelve. The figure 12 is obtained from the fact that usually the tram silk is reeled from six cocoons and each cocoon delivers two filaments. The number derived from dividing by twelve will approximate the tram ends used. The figure 12 is based upon the assumption that 13/15-denier silk is used. Since a very large percentage of tram silk used in hosiery is 13/15 denier, the assumption is quite accurate. If, however, it is known that 20/22-denier is used, of course the figure 16 should be used instead of 12, since eight cocoons would be used instead of six.

To find the denier of the silk used, one can ravel the yarn from the stocking upon a reel. A length of 112½ meters, or 123 yd., may be used. The weight of 492 yd. in denier is the size of the silk. Therefore, if the weight of 123 yd. in grams is multiplied by four to obtain the weight of 492 yd., then by twenty to convert grams to denier, and divided by the strands and 0.80, the denier of the silk in the gum is obtained.

The U. S. Testing Co. states that 20% is an average allowance for boil-off on hosiery tram; therefore, divide the denier of the boiled-off silk by 0.80.

Of course, to be extremely accurate, the silk should be weighed bone dry and the official regain of 11% used; but for practical, approximate results, the method outlined may be used.

Another handy rule, especially for those equipped with cotton-yarn reels, and where odd lengths only of the silk are obtainable, is the simple formula that the denier of the silk is equal to the weight in grams of 638 yd. of silk. Here again the 20% boil-off and the number of tram ends must be used as before.

For example, let us assume that the average of several counts of individual filaments is 95. Ninety-five divided by twelve is approximately eight. We assume, therefore, that the stocking is made up of eight strands of 13/15-denier tram silk. If, upon reeling the silk, 638 yd. is found to weigh 89.2 grams, we divide 89.2 by 8, for the number of strands (previously determined) and by 0.80 for a 20% boil-off. The result is 13.94, or 14, and it can be assumed to be a 13/15-denier tram silk.

◆

Manufacture of Rick-Rack Braid

Technical Editor:

We are enclosing a sample of rick-rack braid. Will you kindly inform us on what type of machine this is made and also advise us where we can secure the equipment needed? (7388)

This type of fabric is made on an ordinary flat braider. The sample submitted was made on a 29-carrier flat braider, using 30/2 mercerized cotton yarn. The zig-zag feature is effected by the use of graduated weights. That is, the weights with which the carriers are equipped may vary from a very light weight to a comparatively heavy weight. For instance, on the present material the lightest weight may be ⅛ oz., the next lightest, ⅜ (¼) oz., the next ⅜ oz., and so on. Or the weights may proceed by 16ths. The lighter weights are usually constructed from aluminum. We are enclosing a list of manufacturers of equipment for making this fabric. The makers of the different braiders will be glad to furnish specific instruction for any particular fabric.

◆

Bleaching Cotton Sheeting

Technical Editor:

Under separate cover, we are sending you samples of gray sheetings, one marked A, and the other marked B. We should like your opinion as to whether sample A will bleach as white as sample B, and with as much bloom as the other sample. (7387)

The sample marked *B* is a superior piece of gray goods and will undoubtedly be a better looking fabric when finished. Sample *A* is made from cotton which has been exposed to the elements too long. While it is not the darkest of the blue cottons, it has enough of a bluish cast to detract from the appearance of the fabric. None of the usual methods of bleaching entirely remove this bluish cast.

We are returning the original samples

of which one part has been bleached with peroxide and the other with chemic. In both samples *B* is the better looking finished piece.

◆

Preventing Edges of Fabric from Fraying

Technical Editor:

Can you give us any information regarding a substance, glue or lacquer, applied over material to prevent the edges of fabrics from fraying? Any book knowledge on this subject will be greatly appreciated. (7383)

We do not know of any printed matter in book form that deals with the subject of keeping the edges from fraying. Several articles have appeared in recent issues of TEXTILE WORLD which have outlined methods of keeping the edges from curling. The same formulas which keep the edges stiff and prevent curling will keep the edges from fraying.

In the article "Preventing Curl in Cotton Knit Goods" (Aug. 16, 1930), the formula for making 50 gal. of paste consists of 14 lb. of thin-boiling starch, 7 lb. of Feculose T. The starch and Feculose T are added to 25 gal. of cold water and stirred until they are thoroughly dispersed. The mixture is then brought to a boil and cooked until the starch is thoroughly gelatinized. The balance of water is then added, when the mixture is ready for use. The advantage of Feculose T in this mixture is to keep the paste nearly the same viscosity, whether it is hot or cold.

The paste solution is applied to the goods by means of a stiff brush and is allowed to dry. It will prevent the edges from fraying as well as curling. The same formula is used in the article "Pasteing a Duplex Glove Fabric" (July 19, 1930).

Should a method be desired that gives quicker drying than those outlined above, a substance known as tailor's mending tissue can be used. Mending tissue comes in sheets and strips of different widths. A piece of this tissue can be cut to the desired width and length and placed beneath the edge of the fabric. A hot iron is placed on top of the cloth and held there a second or two. This will melt the tissue and force it into the fibers and they will not fray.

Lacquers are not desirable because of their odor and the fact that they soak into the cloth and cannot be confined near the edge where they are wanted.

◆

Enlarged Loops in Circular Rayon Underwear

Technical Editor:

We are enclosing herewith two pieces of circular-knit underwear fabric. Sample A *is made from 100-denier viscose-process yarn and has been knit on a 12-feed, 28-cut, 20-in. machine. Sample* B *is from 150-denier acetate yarn, but we do not know the type of machine on which it was made.*

You will note, upon examination of these fabrics, that they both contain small imperfections scattered irregularly throughout. These defects appear to be due to extra-large loops being formed at irregular intervals. These are much more noticeable in Sample B *than in Sample* A, *but they are scattered throughout Sample* A *as well. We shall very much appreciate your aid in examining these fabrics and advising, if possible, the cause of this irregularity. (7384)*

THOUSANDS of inquiries are handled annually by the Technical Editors. In order that as many readers as possible may benefit from this service, we select problems of general interest for publication each week.

We have submitted your problem to M. C. Miller, Manville, R. I., who replies as follows:

"These defects consist of enlarged needle loops occurring only at times and are the result of the head of the needle, as it rises from under the stitch cam, coming in contact with the needle loop head bar of the previously knitted course, due to the web-holders failing to force this bar of yarn far enough beyond the back line of the rising needles.

"It would appear as though a harsher web-holder action would cure the trouble, but it may well be that, due to some irregularity in the cam or machine construction, cutting would result with the harsher action.

"We have this trouble to a greater or less degree with all fine-gauged circular machines, as their web-holder or loop-finishing action operates on the sinker bar of the course that is knitting, whereas such action should take place on the sinker bar of the previously knitted course. Flat full-fashioned machines are not subject to this trouble, as the take-up action, being relatively at right angles to the needles, draws the previously knitted loop heads to their fullest extent beyond the backs of the rising needles.

"A number of years ago I designed special cams which enabled clear fabric to be knitted on circular machines, but whether the same idea is feasible on the particular machines on which the fabric has been knitted, I do not know."

◆

Setting Silk Crepe Thread

Technical Editor:

Can you give us information about a silk twist for hosiery knitting? We should like to know, if we give four strands of silk about 35 turns right twist, what then would be the proper way to "set" this silk for hosiery knitting. (7410)

It is a very difficult task to set the twist on a four-thread 35-turn, right-twisted crepe or radium thread, so that it will not snarl on a full-fashioned knitting machine when the machine comes to a full stop at the end of each course. For this reason a grenadine twist is used, which consists of about 35 turns left twist on the single thread and 30 turns right on

the multiple thread, bringing about a state of equilibrium. You might try the wet method, which consists of soaking the thrown thread on shafts in pure water for about five hours and then drying in a drying room for four hours.

◆

Thread Slippage in Flat Crepe

Technical Editor:

Attached hereto, I am sending a small swatch of flat crepe, pure dye. This crepe is satisfactory with the exception that the customer claims it slips too easily. We should like you to test this little swatch as to slippage and inform us as to whether the slippage is excessive for a regular piece of flat crepe.

Should you have any suggestions to improve this material as to slippage, either in the manufacture or in the finishing, kindly let us know. As to pickage, it is hardly possible to get more in, due to the fact that the goods are already rebating considerably. (7413)

We have analyzed the above swatch with regard to those characteristics which would cause slippage. The construction, reed width, and materials are satisfactory if the desired flat-crepe effect is one of fine hand and sheen. However, in constructions of high set, besides using a high pickage, it is also necessary to increase the twist of the filling. The reason for this is that filling thread which is smooth slips more easily than that which is more highly twisted. The higher twist will not only kink slightly with this medium-weight warp construction and high pickage, but will create a rough thread, which is the desired result. The higher twist will not, with this construction, cause a crepy effect, so that you need not worry about changing the characteristics of your fabric.

We believe that your fabric could be made more resistant to slipping by building up the twist, changing the construction, or using a so-called slip-preventive finish. There are many so-called flat crepes on the market having no better slip-resisting qualities than yours.

◆

Waterproofing Wool Fabrics

Technical Editor:

We are desirous of waterproofing wool goods for the men's wear clothing industry. These garments will be principally topcoats and overcoats. Kindly advise us of the process in which we can use aluminum acetate solution, describing the process in full detail as to the strength of the solution and the application to the fabric. If there is any other process used, kindly give us full description of material used and its application. (7375)

The chemicals most commonly made use of in waterproofing this type of fabric are aluminum sulfate, common alum, sugar of lead, and soap. The so-called soap process is much used, and finds wide application on heavyweight goods. A solution of aluminum acetate is made by double decomposition of solutions of sugar of lead and aluminum sulfate.

Prepare separately two solutions, one of aluminum sulfate in water, and the other of sugar of lead (lead acetate) in water. The first solution is made by dissolving 200 lb. of aluminum sulfate in 80 gal. of hot water; the second, by dissolving 200 lb. of sugar of lead in 60 gal. of hot water.

These two solutions are then mixed with constant stirring and allowed to settle. The clear top liquor is carefully drawn off by means of side plugs in the mixing tank, or by means of a siphon. The sediment is then washed with a small amount of free water, again allowed to settle, and the solution drawn off as before and added to the main portion. The liquor is now diluted to 9° Tw. by the addition of water.

The sediment or precipitate is sulfate of lead. The equipment necessary consists of a few large tanks. The aluminum acetate solution is also referred to as "red liquor."

The best method of waterproofing is to use a continuous machine with a series of bowls and squeeze rolls, the solution being heated to about 100° F. After being passed through this solution and squeezed, the cloth is run through a soap solution containing $\frac{1}{2}$ to $\frac{3}{4}$ lb. of soap (white tallow) to the gallon at a temperature of 100° to 120° F. By this treatment, a deposit of aluminum stearate is formed on the cloth, which cannot be removed by washing, and imparts a superior water-repelling finish.

A waterproofing solution for woolens which is applied to the fabric without soap is prepared as follows: Dissolve 125 lb. of aluminum sulfate in 300 gal. of water; and in another vat containing 500 gal. of water, dissolve 500 lb. of sugar of lead. Mix these two solutions, allow the lead sulfate to precipitate, and siphon off the clear top liquor for use without any further dilution.

The fabric to be treated should be immersed in this solution; or the solution may be brushed on the fabric in slight excess. The excess liquor is removed by extracting. Allow the cloth to dry slowly, steam, and fix the basic aluminum acetate by subjecting to the action of dry heat.

◆

Shiners in Rayon-Filled Crepe

Technical Editor:

Enclosed are three samples of cotton and rayon fabric, 76x58 construction. We find on examining the cloth that on first appearance the shiners, or railroad tracks, which are evident in two of the samples, appear to run entirely across the cloth; but on following them out in minute detail, we find that they occur with a certain regularity in a great many places. We are wondering whether this particular condition might be traceable to anything in back-winding or to loom tension. (7414)

We have carefully analyzed the three samples of cotton-warp and rayon-filled crepe, one all gray and two finished. The gray sample is free from imperfections in the rayon filling. No. 2, a finished sample, shows a streaky effect in the dyeing. The third sample shows very bad shiner effects for a distance of about $4\frac{1}{2}$ in. fillingwise. The selvage indicates that a new cop of filling was inserted where the shiners commence or that the end of the cop came at that place.

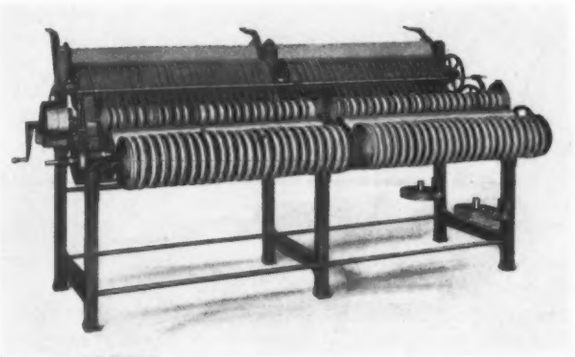
The condition of the selvage shows that a very even tension was used in the shuttle. The cloth width measures exactly the same where the shiner effect shows as it does where there are no shiner effects. If there were any difference in the cloth width or if the selvage edge were rough, we should be inclined to blame the shiner effects on irregular tension in the shuttle. The absence of any change in the selvage or difference in the width of the cloth leads only to one conclusion, and that is that the tension in the copping of the rayon filling is irregular.

New Machinery & Processes

Woolen Roving Winder

WINDING of two different colors of roving on one spool is made possible with the roving winder placed on the market recently by Johnson & Bassett, Inc., Worcester, Mass. An advantage of this winder is that it makes it unnecessary to use two sets of drums and spools on the mule, since a 48-end machine will handle the stock for three mules of 360 spindles or over.

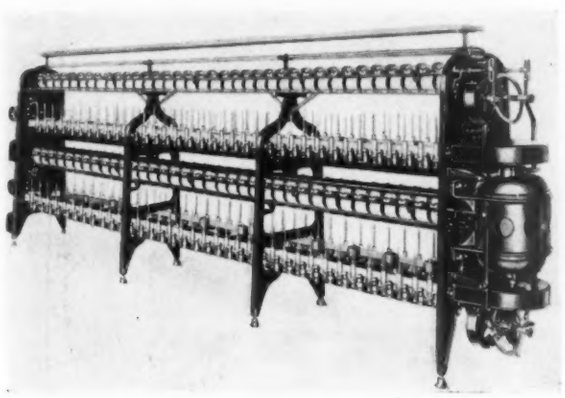
In operating the twister the yarn passes through rolls which insure an even tension, and thus overcome any difference in the wind of the two strands. In this way, when the yarn is spun on the mule, the two strands are twisted evenly and imperfections in the finished goods due to uneven winding are overcome. The rolls are operated by a pinion gear and the drums are driven by change drum gears. Gears are furnished in a range of sizes to take care of different grades of stock. The winder may be operated by either motor or belt drive.



Roving winder permits winding of two different colors on one spool

Silk Twister

INTRODUCTION of a new silk twister, known as the Monarch, has been announced by the Atwood Machine Co., Stonington, Conn. The new twister incorporates a number of new and exclusive features of design and



Double-deck twister

construction. Some of the important characteristics of the machine are that it permits the maximum number of spindles per square foot of floor space, it is equipped with a single vertical high-speed motor drive, belts are replaced endless, and it has a simplified twist-gear construction.

A novel feature is that the belt take-up pulley is also the drive for the twist-take-up rolls, this whole feature being unit assembled by the manufacturer. The twister has an improved cam construction, thus providing better wound bobbins. It is designed to afford grease protection at every danger point, thereby insuring clean silk. Other features include Atwood ball-top spindles, mounted in patented steps; gear guards easily removable for greasing and oiling; positive cam motion operating traverse bars through sliding-rod connection; wider spacing between spindle rails of lower deck than of upper; and provision for equal tension on both decks. The twister is available in both single- and double-deck models.

Boarding Oil for Metal Hosiery Forms

DEVELOPMENT of a stainless liquid boarding oil for metal hosiery-drying forms has been announced by the Active Distributing Co., 1413 West Hunting Park Ave., Philadelphia. This product, known as Eez-a-lene, is said to prevent the accumulation of scum on the forms, fill up all small cracks and pores, and leave the forms smooth. In this manner it reduces pull-threads and reboarders to a minimum and prevents hosiery from sticking to the forms. It is further stated that by keeping the forms in good condition at all times, the boarding oil permits increase of production with the same number of forms.

Water-Soluble Synthetic Resin

THERE has been introduced recently by the Glyco Products Co., Bush Terminal, Brooklyn, N. Y., a synthetic resin which is completely water soluble. It is a glycol condensation product, which is marketed under the name of Glycopon XC.

This product is a sticky resin, light amber in color, odorless, tasteless, and insoluble in organic solvents. It is non-drying and non-hygroscopic. When used with water-soluble gums, glues, gelatins, or casein, Glycopon XC is said to promote greater adhesion, prevent brittleness and act as a flexibilizer or plasticizer. Because of its insolubility in oils, alcohols, hydrocarbons, and other organic liquids, it may be used as a seal in joints, valves, and similar appliances. It has good fire-retardent properties and for this reason is creating an interest for fireproofing textiles, wood, leather, and paper. It is non-

corrosive and does not decompose (integrally) at elevated temperatures. On heating, it becomes harder until finally a glass-like solid is formed. This is of interest in cementing sheets of glass and other materials. Technically it often replaces glycerin where a heavy aqueous medium is desired for suspending solids.

It is non-corrosive, non-toxic, and non-drying. Its effect on the skin is very soothing and it prevents chapping in cold weather. Due to its antiseptic properties, it prevents mildew in textiles. It is stated that when used on high-grade felts, Glycopon XC gives a desirable, glossy effect.

Photoelectric Cell Applied to Jacquard Card Cutting

A DEVICE employing the photoelectric cell for replacing the painstaking labor involved in punching Jacquard cards is described by Arthur Korn, of Berlin, Germany, in the November issue of *Electronics*, the new McGraw-Hill publication devoted to application of the electron tube.

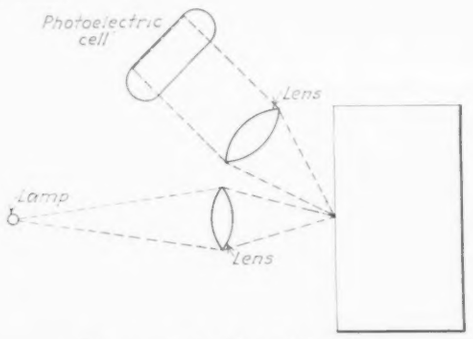


Fig. 1. Reflection of light from design to photoelectric cell

The design from which the punchings are to be made is wrapped upon a revolving cylinder, shown in plan diagram in Fig. 1, and the light of a lamp is concentrated upon one of the little squares by the aid of a lens. The light reflected from the square falls upon a second lens, which again concentrates it and directs it toward a photoelectric cell. A colored square reflects less light than a white square, and the photoelectric cell operates accordingly. The current produced by the illumination of the cell is amplified and operates a relay which controls the apparatus for punching the cards. As the cylinder revolves, one square after another is explored by the photoelectric cell and the card is punched or left untouched in accordance with the design.

Fig. 2 shows the apparatus for punching the cards.

Each time the cylinder shown in Fig. 1 turns to a new square, the piston or plunger, shown in end view in the diagram, automatically descends toward the row of punching pins located directly below. At the lower end of the piston are located hinged impact points, one above each pin, which may be swung to one side to avoid striking the pins when a hole in the card is not wanted.

When the design on the cylinder calls for a hole in the card, the relayed current from the photoelectric cell energizes the magnet with the result that the armature of the magnet is drawn out of the path of a finger on the impact point of the piston. The spring shown at the left of the piston holds the impact point into the position which will allow it to strike the punching pin as it descends.

When the design does not call for a hole in the card, the magnet is not energized and its armature is drawn by means of the coiled spring into the path of the finger on the impact point, thereby preventing contact with the punching pin. The Jacquard cards are fed to the machine automatically.

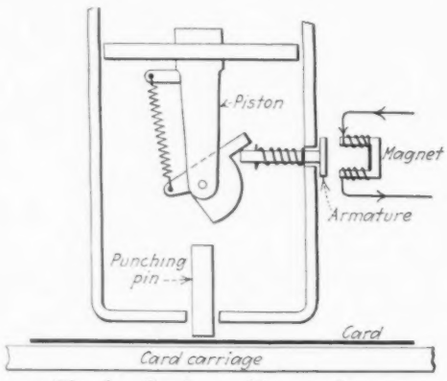


Fig. 2. Card-punching equipment controlled by photoelectric cell

Lubricant for Motors

GREASE of the type employed in its own plants for the initial lubrication of all general-purpose motors using ball and roller bearings has been placed on the market recently by General Electric Co., Schenectady, N. Y. It is stated that this lubricant is being successfully used on ball-bearing applications with speeds as high as 25,000 r.p.m. and temperature exposures from 25° to 250° F. However, its use is recommended only for the lubrication of motor bearings where the motors were originally grease lubricated.

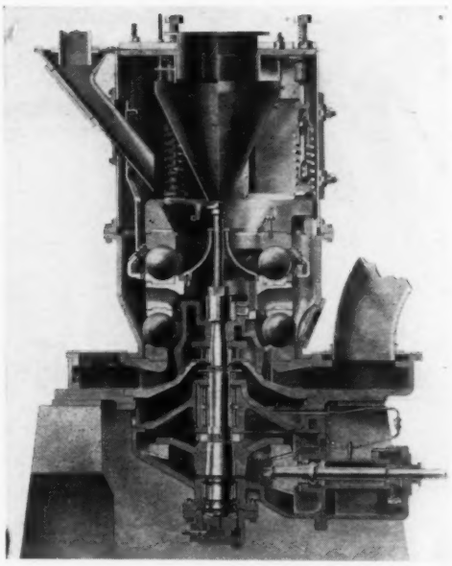
Lubricating grease for ball- and roller-bearing motors

Some of the advantages claimed for the new lubricant are that it maintains an operating consistency under severe conditions and over as wide a temperature range as will be encountered in service, that it allows complete ball and roller motion, and that there is little tendency to gum-cake or separate. The grease contains no free acid or water and will not turn rancid; and it has unusual film strength enabling it to stand severe thrusts and heavy bearing loads.

The new lubricant is supplied in 2-oz. tubes and 1-lb. cans. A tabulation appearing on the instruction sheet accompanying the 2-oz. tube indicates the amount of grease used in the various motors by frame sizes. The tube is calibrated into ½ oz.; and the cover of the 1-lb. can holds 2 oz. This assists in measuring the amounts of grease recommended for the various bearings without weighing the lubricant.

A removable instruction sheet printed on oil-proof paper, inserted in the cover of the can, provides a means of protecting this measure from an accumulation of dirt when not in use.

Protection against the admission of abrasives is further guarded against by the use of a full-opening, friction-top can which has no ring or groove around the top of the can to harbor such material.



Cross-section of coal pulverizer showing grinding principle

Coal Pulverizer

SEVERAL important improvements have been incorporated in the Type B coal pulverizer recently placed on the market by Fuller Lehigh Co., Fullerton, Penna., a Babcock & Wilcox organization. The new pulverizer is an air-separation ball mill which retains the spherical-ball and grinding-ring principle of pulverizing of the well-known Lehigh mill. It is applicable to both large and small direct-fired boilers, including those which have rapidly fluctuating loads, and is also adapted to the requirements of the storage system of pulverized-coal firing.

Since the pressure between the balls and the grinding ring is an important factor in obtaining fineness and capacity, the new mill is so designed that this pressure is obtained independently of the mill speed. This feature, combined with the use of two full rows of balls grinding under high-pressure and at low speed, is said to result in a quiet and smooth-running mill which gives high capacity and fineness. The new pulverizer has no metal-to-metal abrasion of grinding parts, therefore wear of these parts is practically the result of coal abrasion. The balls wear spherically, and the power consumed varies with the coal feed.

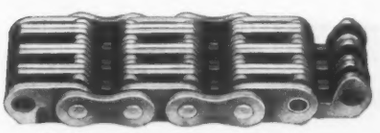
The Type B pulverizer consists essentially of a top or separator section, an intermediate or pulverizing section, and a base or drive section. The top section is of heavy steel-plate and cast-iron construction and contains the classifying cone, coal spout, and the mechanism for adjusting the grinding pressure. The intermediate section is of heavy-section cast iron with machined flanges to which are fastened the top and base sections. The grinding elements, coal basket, and driving yoke are mounted in the intermediate section. The base or drive section is also of heavy-section cast iron and provides a rigid support for the mill. This section encloses the air-distributing chamber, main and thrust bearings, drive shafts and gears, and the forced-feed oiling system.

Grinding elements consist essentially of two rows of large diameter balls and two stationary and one rotating grinding rings. The rows of balls—one row mounted above the other—are separated and propelled by the rotating ring, which is driven by the floats on the main driving shaft. Both the stationary and rotating grinding rings are made to gage in order to insure interchangeability. Grinding pressure between the balls and rings is applied and kept uniform by externally controlled steel springs mounted in the top section.

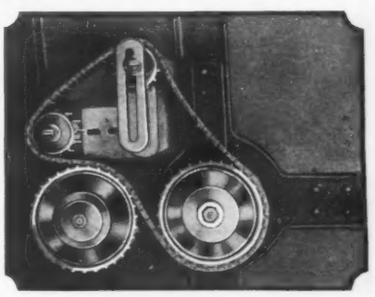
The main driving shaft is supported by a self-aligning heavy-duty Rollway thrust bearing. No thrust or hammering, resulting from grinding, is imposed on the thrust bearing because the mill is so designed that all thrust from this source is absorbed by the heavy lower casing. No lubrication is required within the grinding zone. All bearings and gears are sealed from the grinding zone and are lubricated by an automatic forced-feed oiling system. Type B pulverizers are built in capacities up to and including 40 tons of coal per hour.

Reversible Silent Chain

A NEW type of reversible silent chain has been placed on the market by the Whitney Mfg. Co., Hartford, Conn. The chain allows the direction of the shafts to be reversed and will drive on either or both faces. It is said to be particularly adaptable to installations where lack of vibration and a smooth mesh are especially desirable and also where it is desired to drive several shafts in different directions of rotation or to install a chain take-up device to operate on the back of the chain.



Section of reversible silent chain



Application of reversible silent chain

The chain utilizes a double internal chain-link and sprocket-tooth engagement on either face on one row of links across the chain, with the supporting external engagement of the next row of links on either side of the internal contacting row. This construction gives a combination of the joint load relieving features of the standard single-face, automotive, internal-engagement silent chain, supplemented by the rigidity and strength of the external method of chain-link and sprocket-tooth engagement. The manufacturer states that sprocket wear is negligible, and that quiet, smooth operation is assured. The side-guide type of chain construction is used. Only chains of an even number of pitches can be used.

In selecting sprockets for use with the reversible chain, it is necessary to choose those with diameters which employ an even number of teeth when designed for the conventional single-faced chain, since every other tooth is removed in the reversible chain sprockets to permit the passage of the back of the reverse-face links in their travel over the sprockets.

This reversible chain is designed to give longer life than the conventional, duplex, backlaced silent chain or roller chain, due to the full width of joint bearing across the chain, not interrupted and reduced by spacing washers or inside plates.

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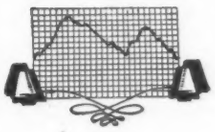
TEXTILE WORLD ANALYST



Cautious Hopefulness Warranted by Outlook

A Turn by Mid-Year with Textiles Well in Forefront, says Dr. Haney

Summary: **This is no time for pessimism. The time for that was in August, 1929. Cautious hopefulness is now warranted. Business should get turned around by the middle of 1931, and the textile industries are for the most part in shape to move up as soon as general business conditions permit.**

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The analysis and forecast by Dr. Lewis H. Haney, Director, New York University, Business Research Bureau, which regularly appears on this page, considers various branches of the textile industry from week to week. The conclusions reached in the Analyst are mostly forecasts and generally apply to a time two or three months ahead. The Analyst is based on statistical data and does not reflect temporary trade sentiment.

AFTER all, there is little new in the business situation. Recent events are merely the outcome of fundamental conditions (such as frozen bank credit) to which we have called attention for a good many months. It is probably for the best that the situation should come to a head as soon as possible, if for nothing else than to remove the feeling of uncertainty which is paralyzing. Once the air is cleared and we can face the facts in a clear-cut fashion, the constructive forces can begin to work.

Favorable Factors Are Present

Certain favorable conditions have been with us for a good many months. We are merely learning that it takes much time for these to become effective and work the cure. Optimists have been talking about easy money for nearly a year. Now we have learned that easy money does not mean a *demand* for money, nor does it mean that lenders will be easy in extending loans. Money rates have been lower than security yields for a good while, but until the future yields of securities become more certain, the current situation is not effective.

Shortages have been "in the making" for some time. But they are not yet made. Until the existing large stocks of commodities are drawn upon and supplies of articles in consumers' hands bought on the installment plan are considerably diminished, buying will be backward.

We have been hearing much of the stabilization of steel and copper prices. It is doubtful, however, if this is a favorable development. It may be premature, and the recent action of the copper market suggests that this is probably the case. With raw cotton and silver making new lows, and a majority of basic commodities declining, there is good reason to doubt the wisdom of attempting to hold prices up artificially.

Government construction is still being pushed and more of it is in prospect. The efficacy of such measures, however, is now more generally doubted. They seem but a drop in the bucket, are apt to anticipate the normal demands of the future, and are bound to increase taxes.

About the only new factor in the situation is the November increase in the unfilled orders of the Steel corporation. Not even the stock market, however, appears to consider this significant. Obviously, the increase was largely due to a decrease in shipments rather than to new business, and such increase in new business as may have occurred was due to the artificial attempt to mark up prices for the first quarter.

Unfavorable Elements

On the other hand, the unfavorable factors in the situation continue without much change. The trend of commodity prices is still downward. Farm prices and purchasing power show no improvement. Factory employment and payrolls made another sharp drop in November.

Naturally, retail trade has been unfavorably affected and we find department store sales showing a decline in November, while mail order house and chain store sales join the declining barometers.

Building contracts awarded declined again in November. The machine tool orders barometer registered a sharp decline. Stocks of basic manufactured products continue very large and apparently have increased further.

Bank loans continue above normal and are unduly large in comparison with deposits or with the current requirements of business. The security markets, including the bond market, continue in a bearish position, and it is significant that the hoped-for period when new bond issues may furnish the basis for industrial expansion is still somewhere in the future.

But above all, there is uncertainty. There is uncertainty as to the future trend of business during the next few years. There is uncertainty concerning domestic politics and legislation, to say nothing of international relations and foreign trade. This uncertainty comes to a head in the bond market which has reached new lows for the last two years. Men now want the facts. In a way, the failure of a large New York bank is constructive in that it cleans up a weak situation that has been worrying the financial community.

No Time for Pessimism

But this is no time for pessimism. Rather it is time for cautious hopeful-

MONOMAC SPINNING CO. *French Spun worsted yarns for knitting and weaving.*

ARLINGTON MILLS *Bradford Spun worsted yarns for knitting and weaving.*

ACADIA MILLS *Mercerized yarns—natural, dyed or bleached.*

NONQUITT MILLS *Combed yarns spun from American or Sakellarides cotton.*

CRAMERTON MILLS *Combed yarns for knitting and weaving.*

TALLAPOOSA MILLS • MARY LOUISE MILLS *High-grade carded weaving yarns.*

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ness. The time to have been pessimistic was in August, 1929. It is unreasonable to rush to extremes of pessimism just when we are nearing the bottom of a business cycle.

Production is about 25% below normal—well, that is nearly as low as it ever gets. Cotton has fallen under 10c. a pound—well, that is certainly below cost of production and insures a good curtailment of the acreage. A large New York bank fails—well, it had been tottering and had become a source of fear and uncertainty, and it is better to know the worst.

The great readjustment in commodity prices that has been required is now well under way, with raw materials nearly low enough and finished goods at wholesale and retail coming down. In a few months this readjustment will be completed and the physical volume of business can increase again at the new price levels. It seems to us that there is a very good chance that business will get turned around by the middle of 1931 and it is highly probable that the textile industries have put themselves in a position to be early participants in the general business recovery.

Textiles Well Liquidated

Except for some branches of the silk industry, the major textile industries appear to be well liquidated. Certainly the textile materials are relatively cheap. Cotton, wool, and silk are all below a normal relationship with the general level of commodity prices, and it can now be said that the retail cost of clothing is relatively low compared with the total cost of living—a condition that has not existed in recent years. From a long-run point of view this decline in retail clothing costs at a faster rate than the average cost of living is very constructive from the textile point of view.

The textile industries have been unfortunate this year in that they got ready for an upturn in the textile cycle at a time when general business was still in the midst of an unusually severe and prolonged recession. The condition of general business has apparently been too much to overcome and has especially handicapped the wool manufacturers. Wholesale dry goods sales have been increasing, considering the season, since July. After periods of drastic curtailment of production there was an increase in machinery activity, first in wool manufacturing (May and June) and then in cotton and silk. Retail trade in textile products gave signs of holding up quite well.

But consumer purchasing power has been so reduced by losses in real estate and stocks, and reduction in earnings, that retail trade has been below normal and it has become evident in the last month or two that under the circumstances the increase in textile production was premature. This is obviously the case in silk and recently it seems that cotton textile production has gone

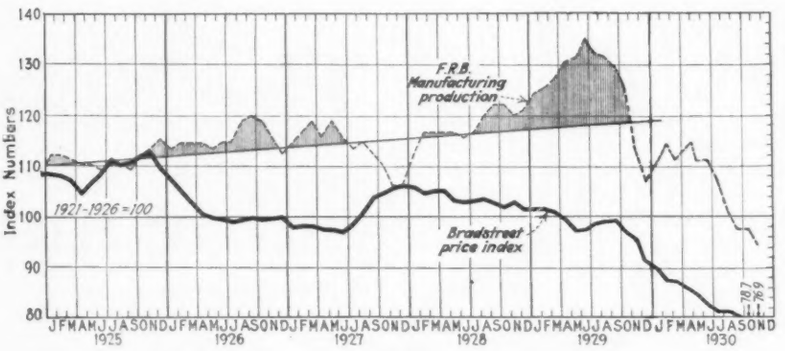

Index Numbers
140
130
120
110
100
90
80
F.R.B. Manufacturing production
1921-1926=100
Bradstreet price index
187
169
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
1925
1926
1927
1928
1929
1930

Fig. 1—PRODUCTION AND PRICES—Industrial Production—Average Daily, Adjusted for Seasonal Variation, Federal Reserve Board; Commodity Price Index—End of Month, Bradstreet's Journal. Average 1921-1926 = 100 for both indexes.

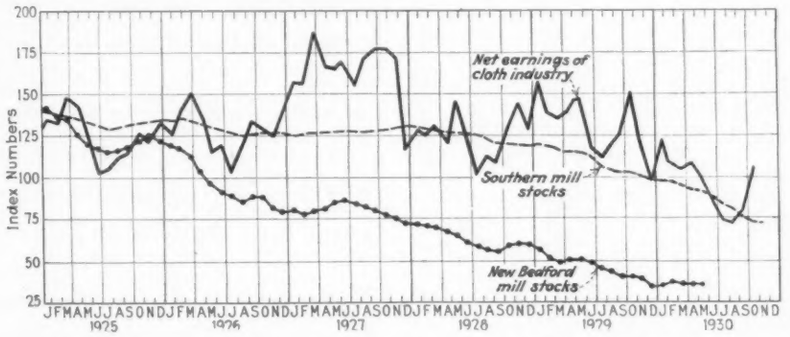

Index Numbers
200
175
150
125
100
75
50
25
Net earnings of cloth industry
Southern mill stocks
New Bedford mill stocks
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
1925
1926
1927
1928
1929
1930

Fig. 2—COTTON MILL EARNINGS AND SECURITY PRICES—Net Earnings in Cotton Cloth Industry—Computed from the cost of raw material, labor, fuel, etc., the price of finished goods and the volume of production (New York University, Bureau of Business Research). New Bedford Mill Stocks—Average price 25 New Bedford cotton mill stocks (New Bedford Standard). Southern Mill Stocks—Average price 25 Southern cotton mill stocks (R. S. Dickson & Co.).

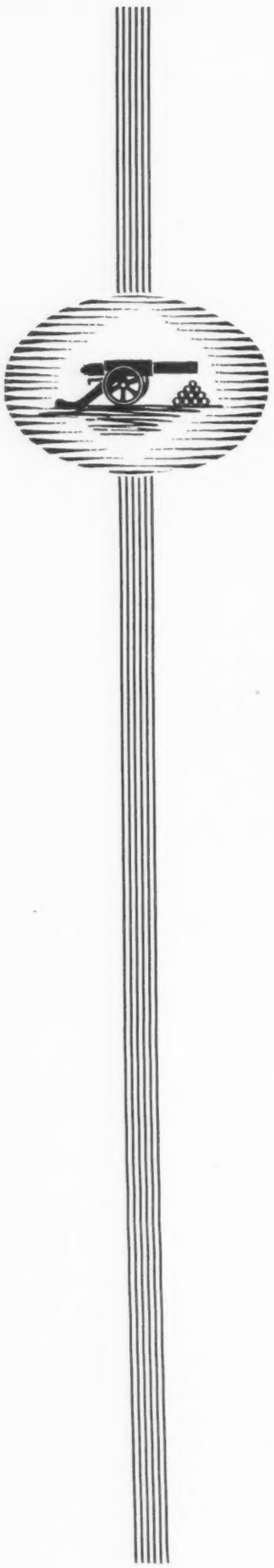
a little too far. The result has been that the number of pounds and yards produced has increased more than the value of the production. Prices of cotton and silk textiles have hardly been strong enough to warrant such an increase in output.

The recent cotton cloth figures, while they continue favorable, are not as favorable as they were in September and October. The decrease in unfilled orders and the increase in stocks during November were less than seasonal, which is not bad. The worst feature, it seems, was the continued increase in production of cotton cloth, and it is to be hoped that cotton manufacturers have learned their lesson so well that they will not attempt to test their markets too far. They should note that spinners' margins declined in November, as did the spread between the price of gray goods and the price of raw cotton.

Despite the increase in our estimate of the earnings of the average cotton manufacturer, we find the average price of southern mill stocks making a new monthly average low in November and declining further in early December. Plainly it is still indicated that textile manufacturers should make haste slowly.

The Textile Trend

Cotton Textile Markets: Cotton goods will end the year in a weaker position than observers expected two months ago. It was known that demand would taper off from the early fall peak but it was hoped that manufacturers and sellers would be able to consolidate their gains of that time. Some of the ground has been lost but conditions are not as bad as they might be. This market has had to fight under unfavorable conditions of general business and at the same time raw cotton has sunk to levels that were unexpected. The two have caused some uneasiness among a few but the average selling house is maintaining the proper perspective and points to the improved statistical position of the business. This year will close with stocks smaller than for many years while unfilled orders are expected to total 100,000,000 yd., more than a



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Sole Sales Agents for
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Sales Agents for
IMPORTED DUTCH ENKA RAYON FOR THE SOUTHERN STATES

CANNON YARNS

year ago. With the exception of a fair interest in colored goods recent selling has been featureless.

Wool Textile Markets

Buying of spring men's wear and shipments from mills should be at their best during November and December. While a few mills are busy turning out orders to meet last minute specifications from clothiers, the large volume remains to be placed. Largest volume of deliveries of men's fabrics is expected to occur in December and January this season, and probably most in January. The lightweight season, instead of ending as it normally does in March, will run into May according to present indications. Plain fabrics are wanted in most instances, sellers say, although this is the fourth season for them. Prices are nominally unchanged but it is possible for buyers of spot goods to obtain concessions from sellers needing cash. Late ordering of tropicals may cause a rush in these lines. Dress goods buyers are waiting until first of year to place new orders. Worsted yarns are quiet and prices nominal.

Knit Goods Markets

A few spurts of last-minute holiday buying and a general policy of procrastination as regards spring orders, features the knit goods market. There is a noticeable lack of confidence among buyers, and certain of the producers have not slowed up output to conform to this feeling. Full-fashioned hosiery mills have curtailed, but not in proportion to the lull in demand, it is claimed by observers. Outerwear interest centers on bathing-suits, all of which lines are in good position, thanks to active future coverage. Spring sweaters move unevenly and no real call is expected prior to mid-January. Underwear sales also have slackened, but heavyweights continue to move moderately; announcements of price cuts by several mills have not weakened market, and as heavyweight underwear stocks are light, no general cut is expected. Spring underwear picks up slowly.

Silk Textile Markets

Raw silk shows a slight advance, and market tone is good, though buying is not too spirited. Japanese markets continue firm, and this strength has bolstered up prices in New York. In yarns, spun silk is the leader, with an active call for shantung yarns, running well into the first quarter of 1931, and a shortage of certain numbers for quick shipment; spinners in good position, due to limited output and regard new year with confidence. Thrown yarn is quiet and prices are somewhat easier; light call from broadsilk weavers. The broadsilk mills themselves report a general holiday lull; spring prints move hesitantly, but some firms have fair business booked; buyers tend more to expensive fabrics, which is regarded as good sign.

Rallies Follow Cotton Break

Offerings Subside After Drop To New Low Ground

THE cotton market continued weak and unsettled with contracts for all deliveries this side of July selling well below the 10c. level during the week, under continued southern hedging and liquidation of long accounts. Reports of additional bank suspensions, rather disappointing domestic consumption figures for November, the continuance of the pre-holiday dullness in the primary cloth markets, and the weakness of the stock market were all contributing factors on the decline which carried prices for futures here to the lowest levels they have reached since 1915. An improved technical position, rather than anything like a general revival of confidence in values, perhaps, then asserted itself in an increased demand from shorts and the trade. This was reflected by rallies and southern selling seemed to be tapering off toward the end of the week, as if supplies of spot cotton brought out by the decline in prices or possibly disturbed by southern bank suspensions had been pretty well absorbed and hedged. The undertone, however, showed continued nervousness and traders seemed to be waiting for signs of an improvement in the general situation before taking an agressive position on the market.

The report of the Census Bureau placed domestic consumption for November at 414,887 bales against 541,153 last year. The figures for November were slightly below those for October but November is a shorter month and according to the New York Cotton Exchange Service, the rate per working day was slightly higher than October. The feeling is that consumption which for the first three months of this season was at the rate of about 10,800,000 bales per annum for the world, is increasing slightly, but the increase is hardly sufficient to make much impression on sentiment. All calculations so far heard on the probable world's carry-over at the end of this season have been based upon expectations of an increase and more favorable comparisons with last year's figures during the second half of the season.

Meanwhile, reports reaching here from the South indicate increasingly strong prospects for a substantial reduction in acreage. According to some conservative interests in the trade here, regardless of any acreage reduction campaign, the situation almost insures a substantial reduction owing to the financial position of the farmers. These small bank suspensions which have been reported during the last two or three weeks all have a bearing on the situation in this respect. It is possible that they have led to some liquidation of spot holdings which merchants have purchased against sales in the late months in the futures markets, but at the same time have suggested a tightening of finances and the probability of acreage reduction or decreased use of fertilizer on cotton next year. Some authorities believe that the acreage will be reduced by 15 or 20% and the yield per acre is likely to prove a comparatively light one because of less intensive cultivation. With a yield equal to this year's estimate a reduction of 20% in acreage would mean a crop of less than 11½ million bales. Such a prospect, if it should develop, of course, would put a different complexion on the statistical position, as it would doubtless necessitate substantial inroads into the old crop cotton carried forward.

The severe decline in the price of silver has greatly curtailed buying power in the Far East, while reports generally indicate that American cotton is meeting much competition from outside growths. The anticipated increase of about 600,000 bales in the Russian crop is naturally a factor in this connection, while Indian cotton is moving into consumption at a relatively much faster rate than American, and there has been much talk of increased competition by Egyptian uppers with American staples. Nevertheless, cotton is now selling at prices which, it would seem must inevitably stimulate consumption.

Unsatisfactory Season Behind

Memphis, Tenn., Dec. 15—The cotton trade here approaches the turn of the year with an unsatisfactory season behind them and without definite hope as to the immediate future. Such optimism as exists is based on the idea that mills and distributors of goods have been operating with a view of going out of the present calendar year with the smallest possible inventories and commitments and that needs are therefore accumulating. Declines in contract values since the Government's final estimate on the crop have resulted in something resembling demoralization, but first hands are surprisingly firm. Buyers are showing less and less disposition to accumulate stocks, which they say is due to fear of the Farm Board. Mill orders are few, usually for small lots and for descriptions that are hard to find.

The better grades in all lengths are neglected, as also are all cottons of less than $\frac{15}{16}$ in. Liverpool seems to be about

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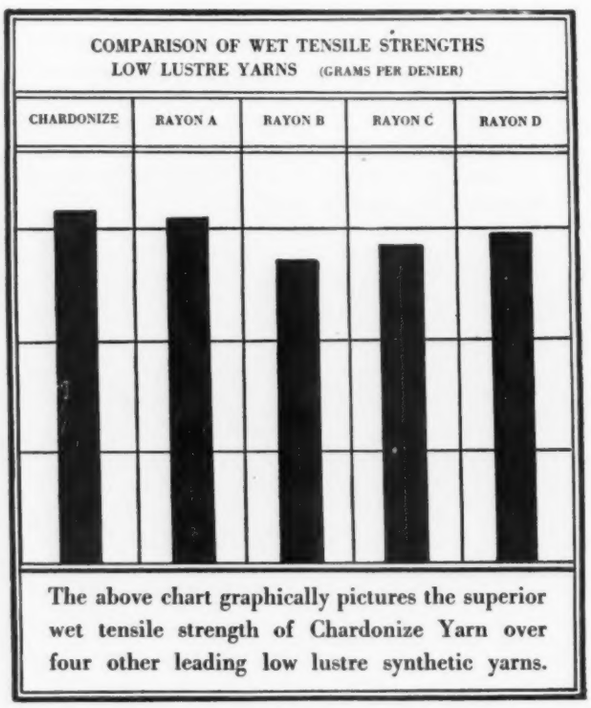

The above chart graphically pictures the superior wet tensile strength of Chardonize Yarn over four other leading low lustre synthetic yarns.

To supply the requirements of customers, for dull lustre and wear, buyers today are studying low lustre synthetic yarns. The appearance and strength of the yarns themselves determine the dull luster of the finished merchandise.

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the only outlet for low grade 1⅛ in. and longer, and that is small. Bright strict good ordinary and low middling 1 in. to 1⅛ in. are wanted at 25 to 50 points better basis than prevailed a week ago but offerings are extremely limited. Demand for off-colors seems to have improved a little but, as a rule, buyers want bright cotton and are much more exacting as to color than grade.

A sharp decrease in new crop acreage is expected, because of unsatisfactory prices and restricted credits. The old crop harvest in this territory is practically over and appears to be more than 95% complete for the belt as a whole.

Cotton Decline Hurts Yarns

Market Stands Up Fairly Well Considering Conditions

THE decline in cotton coming at a time when demand is always seasonally dull has had the effect of lowering yarn prices and causing confusion among spinners. Yarn consumers have lowered their ideas to levels that were unthought of two weeks ago; spinners have lowered their ideas at least 1c. as compared with last week but are not ready to accept the figures manufacturers offer for immediate orders.

As an example, large buyers have offered 20c. for 20s-2 warps this week, ordinary quality. Spinners, in no instance reported, have accepted this figure. They point out that to do business on this price basis they must be able to buy cotton at 6½c. or less which has not been possible by a considerable margin. Even then it would be profitable only if they booked enough business to run their mills full time.

Market Acts Well

Spinners have presented a firm front to low offers and the lowest quotation that selling-houses in Philadelphia and New York have received this week from them was 21½c. It has been possible to pick up scattered lots of skeins and tubes at slightly lower figures if shipments could be made during the remaining part of December.

To off-set lack of demand from manufacturers there will be more than the usual end-of-the-year curtailment among spinners. A fair number have asserted that they will close Dec. 19 for the balance of the year; practically all will close from Dec. 23 to Dec. 29. In view of the already small stocks held by spinners this action will result in stocks being kept within reasonable limits.

Shipments Hold Up

Although December will be a poor month from spinners' standpoint so far as new business is concerned reports indicate that shipments this month, if continued at present rate, will bring the total higher than November. This means that manufacturers are specifying larger amounts than they have bought this month and that a considerable volume of buying will take place during January.

Stocks in their hands are smaller than for many months and the technical position of the market is strengthened to that extent. Nobody wants to buy with cotton touching lower levels each day. Yarns have followed in proportion and purchases show a loss shortly after placed.

In view of this it is natural that few orders have come through during the last few weeks. The month is therefore practically written off so far as improvement is concerned, and the important question is, "When will cotton begin to turn the other way?" When it does there will be buying of substantial volume.

One of the largest sellers reports that he has already sold a larger poundage of yarns this year than during 1929, but the dollar value will be considerably less. He predicts that the first quarter of next year will witness the entry of a large number of buyers, not only to cover nearby needs but to buy well into the year.

Combed and mercerized qualities have been easier along with the rest of the market although quotations remain unchanged from the previous week. Buyers have ideas that are several cents under this level.

Cotton Goods Position Sound

Current Softening Easily Overemphasized

IT MUST be admitted that recent developments in cotton goods leave much to be desired from the standpoint of the manufacturer and the selling agent. Prices have been cut in numerous instances and sales have been forced where buyers were admittedly in no mood to take on goods. Notwithstanding all this it is possible to have a fair degree of optimism concerning the whole situation as we come toward the end of one of the most unusual years of the business.

Sellers have some excuse for the price-cutting that has been indulged in during the last few weeks. The most important is that cotton itself has been acting in a manner not calculated to help goods sellers. The raw material has dropped to unthought-of prices and goods buyers naturally want to benefit from this.

Mill Margins No Better

Goods prices have taken this into account and have gone even further in several instances so that buyers have no cause for complaint. From the mill standpoint all has not been done that might have. In view of the improved statistical position many assumed that in a period of easiness in the raw material market, goods prices would have held firmer than cotton.

Looking at the market broadly, not from the standpoint of current sales, it should not be forgotten that sellers have made great strides during recent months and notwithstanding weakness on the part of a number conditions are sound fundamentally. Stocks are smaller at the end of this year than they have been for many years and the position of unfilled orders likewise is better.

Fundamentals Are Sound

If mills curtail during the holiday period as it is expected they will, stocks will be approximately 100,000,000 yd. less than a year ago and unfilled orders will be approximately the same amount more. Conditions could be infinitely worse than trading during the last few weeks would indicate.

Demand has been featureless with the exception of sales of colored goods, which in the cases of several houses, have been larger than production.

◆ Inactive Cotton Waste Market

THE demand for all types of cotton waste is still at a low ebb and prices on spinnable materials have moved downward during the week. Peeler comber sold this week at 8½c., as compared with 9c. the previous week, and peeler strips are off about ¼c. There was a little interest manifested in the cheaper grades of waste, such as picker and fly at unchanged prices. There was some call for threads also.

Waste dealers are focusing their attention upon the question of contracting for their waste supplies for the coming year, and are arranging with producing mills to buy their wastes at fixed percentages of the ruling prices of spot

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cotton in New York. It is reported that comber has been contracted for on an 80 to 82% basis, peeler strips on a basis around 68%, while good upland strips were bought at about 58 to 60% of ruling prices.

Wool Year Closing at Bottom

Worsted and Woolen Raw Materials Show No Resiliency

THE wool market is unlikely to develop any enthusiasm this side of the new year although it is possible that mills in receipt of duplicate business may find it necessary to purchase additional supplies. Unless something unusual happens the wool market will end the year on the low price level of the year. The London wool sales closed five days ahead of original schedule. The demand was moderate with prices fairly steady. Quantities of colonial wools were removed from the catalog when it became apparent that reserve prices would not be met. In Australia and in South Africa, wool growers are displaying strong objection to having their wools offered on a thin market, with the certainty that the more wool offered the lower the price obtained. Wool growers outside the United States are not in good shape and a marked reduction in production may be predicted for 1931 season, unless there is some rebound in wool values in the early part of the new year.

Statistics relating to shipments of wool out of Boston to consuming mills are incomplete and to that degree unreliable. The only figures available cover shipments by rail and sea. There is reason to believe that delivery by motor truck is becoming a more common method of transporting wool from merchant to manufacturer. The policy of buying for current requirements entails in many cases quick delivery. Shipments by rail and sea for year to date are 40,000,000 lb. less than in the similar period of last year. As to the amount of wool, particularly domestic, held in Boston at this time there are many opinions but practically no definite information. The Boston Wool Trade Association did not take the usual inventory at the beginning of 1930 and has apparently decided to discontinue this annual stock-taking. It is common belief, however, that the cooperatives and independents are carrying the bag and that the mills have less wool in their possession that for several years. This again is pure conjecture and the failure of the Department of Commerce to continue its quarterly wool stock report is something of a calamity to statisticians.

Top Market Easier

The wool top market is depressed, not merely by lack of substantial new business but also by offerings of stock lots which have been combed on commission from wools purchased by concerns which are not in the regular business of top making. Difficulty in disposing of certain stocks of wool has lead to such stocks being combed on the supposition of a quicker market for their disposal in that form than as original wool. Standard topmakers are offering resistance to the development of any weaker position and yet have been compelled to make concessions on strictly staple tops in order to meet the market. The market has had a considerable decline during the year, much more severe in crossbreds than in merinos. Bradford has suffered more severely than has Boston and the key warp 64s is now unsteady on the low price of the year. The table herewith gives comparisons:

	Current price	Year ago	Per cent decline
Boston Territory..	93c.	$1.13	18
Boston 50s.....	65c.	93c.	30
Bradford 64s.....	24d	35d	31
Bradford 50s.....	13d	24d	46

Long View Favors Rags

Prices on standard reworked wools are reflecting the low-priced rag situation, and some concerns are contemplating a downward revision in prices, though such revision is not likely to go very far. The rag and reworked position though unsteady at the moment shows signs of betterment in the near future. It is hardly possible according to current opinion either for prices or volume of business to move much further in the wrong direction. Graders are meeting a scattered demand for the standard fine and medium rags both white and colored and are also doing a little sample business in bright colored knit stocks.

The wool rag market is beginning to realize, quite slowly however, that it has been unduly depressed by current conditions to the degree of being unable to take a reasonable view of the prospects ahead of the industry. There is small reason to suppose that the supply of domestic rags will be sufficient to meet the normal demands of the woolen industry during the next three or four years. Any appreciable decline from current price level of mixed and graded rags seems unlikely.

Waste Trend Uncertain

Wool waste demand remains sluggish, the depression being fully reflected in the market. Stocks of good materials are far from large and yet more than adequate to consuming demand. A general desire to lighten burdens and to come to the end of the year with small inventories is in evidence and this is a factor in preventing any material improvement. The market continues to struggle against the pressure for lower prices forced by the small amount of new business arriving and the necessity on the part of some traders to reduce their stocks and realize in cash before the year ends. On current selling prices to consumers it is a positive necessity that additional supplies be acquired at lower levels, and it is expected that producing mills will finally see the matter in this light.

Small Business Hurts Noils

The noil market during the last six months has been slowly adjusting itself to conditions featured by restricted demand and fair supplies. Fine noils have now returned to the lower basis seen earlier in the year and from all accounts are quite as low as they are likely to be unless there should be some sharp recession in wool values. Mill demand restricted by the unsatisfactory situation of the woolen branch of manufacturing has been on a low ebb for many weeks and its continuation may be expected for the balance of the year.

Wide Range in Worsted Yarns

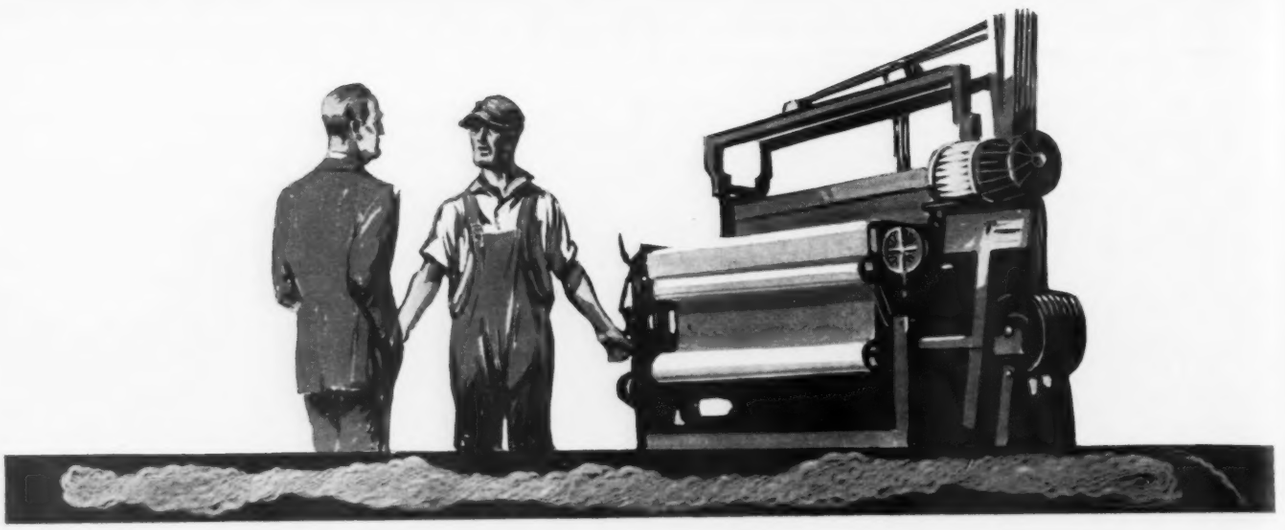
Variation in Quotations Lessens Buyers' Confidence

WORSTED yarn sellers got what they looked for this month—little business. Unlike cotton yarn spinners there will be no general curtailment among them although a fair number will close for a few days at holiday period. Aside from fair-size deliveries on men's wear mixture contracts placed months ago there is nothing important in the way of business.

Not only is new business lacking but knitting trades are taking little on contract. Few knitters have long contracts either on spinners' or jobbers' books and majority are content to buy small filling-in lots as they are actually needed.

French Spun Steadier

In view of this situation prices of yarns are nominal although French spun counts are on a sounder basis in this respect than English spun weaving numbers. There has been such a small amount of buying in the latter that it



Don't blame the machine— if Yarn flakes "repeat"— get flake Yarn that doesn't

The machine can't think. The weaver himself can't help it—no matter how skillful. The remedy must lie in the yarn itself.

Toulson Flake or Knot Yarns do not "REPEAT." They're *made that way*—by Toulson. Any combination of silk, rayon, cotton, worsted.

Which means also that Toulson quickly produces novelty yarns of all kinds. Send us an example of what you want and, quickly, confidentially, we will "show you." Or if you want fabric *ideas*, ask a Toulson Salesman with samples to talk it over with you, without obligation on your part.

Think Toulson FIRST on that next Yarn problem.

TOULSON YARNS, INC.
Bridgeport, Conn

TOULSON
NOVELTY YARNS

is difficult to know just where the price level is.

French spun counts have already been lowered, and, while there is a wide range between the high and low price spinners in this group depending how badly they need orders, prices are stronger than in any other section. Several are quoting 1-18s, 64s, dyed, at $1.50 while sales have been made in small lots at least 7½c. lower. If a buyer offered spinners a fair amount of business right now lower figures would be seen.

This is apparent in 2-40s, 64s, zephyr yarn which is held at $1.50. A number of spinners admit they will quote 2½c. lower on medium-size inquiries; however, in the absence of orders at either level the market level on such counts should be assumed to remain unchanged at the former level until such time as a representative amount of business comes through to cause spinners to change one way or the other.

Spring Volume Awaited

A few knitters have decided what counts and grades they will use in their spring merchandise but the majority have not. The most interesting problem is in regard to yarns that bathing-suit manufacturers will use. Early indications were that they would confine largest interest to 64s but later developments seem to point to use of a slightly lower grade. A few have turned to two-ply in ⅜s wools in view of their relative cheapness.

What is considered important is the fact most sweater mills are entirely cleaned out of stocks of lightweight men's and women's sweaters. A number of department stores have been unable to secure duplicate orders on goods wanted to be delivered in time for the Christmas trade. It has been necessary for them to take delivery of different colors from those specified or do without the merchandise.

Aside from the usual December lack of interest the market clearly shows that stability is urgently needed if conditions are to change materially after the first of the year. Many feel that wools are about at the lowest point of this downward move; if this is true then it is up to spinners to present a far firmer front if they are to do business, than they have shown during last two months. Buyers lack confidence and this needs to be quickly corrected.

◆ Men's Wear Orders Are Due

NOVEMBER and December are usually the two largest shipping months for manufacturers of men's wear fabrics. Although the total volumes placed has been small a number of mills are busy, several running night and day to make deliveries to clothiers as specified in last minute orders. The largest shipping months this season will be December and January.

The lightweight season will last well into May, which is two months later than normal; but seasons can no longer be divided in the old way. Buyers are ordering cloth when they get clothing orders, whether heavyweight or lightweight, and it is up to the selling agent and manufacturer to make the best of it.

Small Stocks Adequate

There are no large accumulations, but stocks are more than adequate to take care of current orders, and for this reason buyers are able to drive hard bargains for spot merchandise. Where spot goods are sought the buyer is offered concessions. The more this is done, the less buyers are willing to operate ahead.

Although this is the fourth season in which demand for plain fabrics for men has lead fancy and novelty lines, there is nothing that makes selling houses believe this trend is changing. Many large sellers say that current interest in plain lines far outdistances that in novelty lines.

What About Tropicals?

The possibility of a shortage of tropicals when they are wanted is stressed by several who point out that little buying of these lines has taken place. Stocks are not held in large quantities, mills being disposed to wait for orders before going ahead.

Others point out that selling houses have been doing a fair business in fabrics around 10½ oz. which were developed to compete with or actually take the place of tropicals.

Raw Silk Grows Confident

But Caution as Regards February is Recommended

CONTINUANCE of the steady tone of the raw silk market for more than a month now finds importers in a confident state of mind. The market more than held its own for the past week; at present writing, prices are 5 to 10c. above last quotations. There is a good buying sentiment and, while it is centered on immediate coverage due to the approach of inventory-time, the turnover is somewhat better than had been expected. Importers remarked this week that the undertone in raw silk was better than it had been in months.

The market apparently looks for a steady situation through the concluding weeks of the year also for a pick-up in January. What February will bring is dependent upon the spring fabric season, and a stiff recession is considered possible; at all events, there is a trend toward conservatism as regards spring, but the immediate prospects are very encouraging. The chief hitch at the moment is that Japan's total silk surplus is an unknown quantity; the best-informed figures in the New York market said they had no way of estimating the amount held in the interior districts. Yokohama continues firm, and this influence serves to bolster up the New York market, which was already firming on its own account, thanks to a steady movement of silk to broadsilk houses.

N. Y. Raw Silk Stocks Low

Raw silk stocks in New York are unusually low, and Yokohama stocks are slightly larger, but are so badly assorted that a considerable quantity is unavailable.

It would be dangerous for the market to rely too much on a spring improvement. Prospects point to a good January turnover, but caution is advisable as regards February.

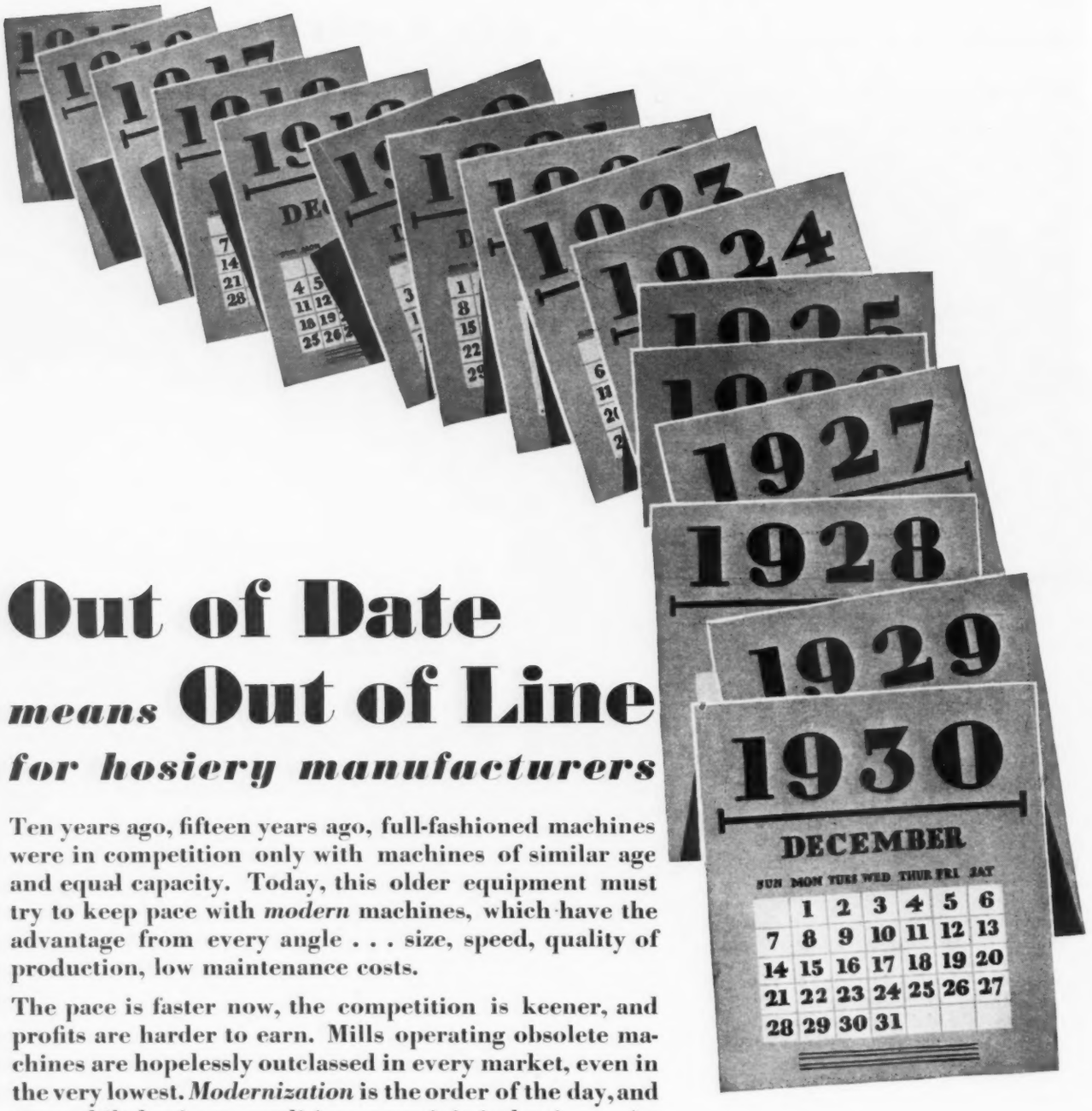
On the Exchange

Domestic prices opened weak, but Japanese quotations were firm, and there was a slight recession toward the end of last week. The market was hesitant on Monday and Tuesday brought a further firming in Japan, tending to tighten New York prices. The week was satisfactory on the whole, with silk in a slightly improved position and confidence building steadily. Trading was decidedly more a "business" than a "bargain" proposition.

◆ Spirited Call For Spun Silk

SPUN silk continues the favorite child in the yarn market, and spinners are doing a good business, both spot and future; the demand is narrowly confined to the broadsilk field, and most of the yarn bought is for shantung fabric manufacture. The broadsilk mills show surprising confidence regarding shantung prospects for spring and are buying steadily; in some cases, large orders are placed. Weavers are buying through January quite freely, and there is a moderate February call, but orders beyond February are light. Spinners have little or no stock ahead, and are holding production close to demand, with the result that they are in a fairly firm position. Certain of the two-ply yarns for shantungs are scarce and weavers are compelled to wait two to three weeks for delivery. Knitters and the woolen and worsted trade are quiet.

Thrown yarn is quiet and prices are somewhat easier, but the market ex-

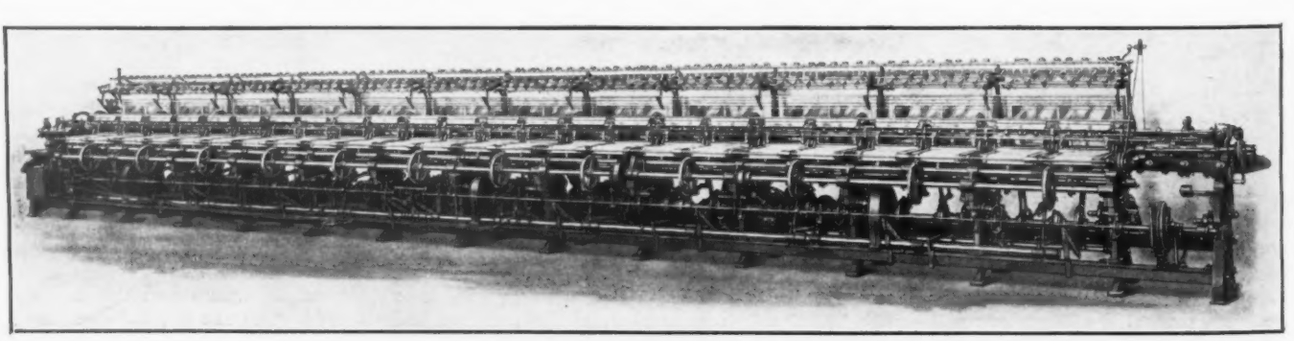


Out of Date
means Out of Line
for hosiery manufacturers

Ten years ago, fifteen years ago, full-fashioned machines were in competition only with machines of similar age and equal capacity. Today, this older equipment must try to keep pace with *modern* machines, which have the advantage from every angle . . . size, speed, quality of production, low maintenance costs.

The pace is faster now, the competition is keener, and profits are harder to earn. Mills operating obsolete machines are hopelessly outclassed in every market, even in the very lowest. *Modernization* is the order of the day, and now, while business conditions permit it, is the time to install machinery which shows immediate and lasting profit.

TEXTILE MACHINE WORKS
Reading, Penna.



The Reading Full-Fashioned Knitting Machine as it stands today—after 32 years of development—is the lowest priced, highest producer ever offered.

pects to hold its own through the dull holiday period. Broadsilk mills are buying lightly for spot shipment and a few January orders are being written. The hosiery mills overcame their apprehension sufficiently to place a moderate quantity of January business this week. Throwsters do not look for any material change in the picture before the turn of the year.

◆Broadsilks Feel Christmas Lull

SHOWROOMS of broadsilk houses are deserted for the most part this week, both cutters and retailers having suspended their purchasing activities for the holiday period. There is a moderate influx of telephone and mail orders for spring prints, flat crepes being emphasized, but weavers are resigned to a quiet period and cheer themselves up with hopes for a spirited improvement in mid-January; this hope has a certain logic behind it, as fabric stocks in the hands of both cutters and stores are abnormally light, even for inventory time, and both divisions may be expected to do some quick buying a couple of weeks after the holidays.

Broadsilk market tone is optimistic, but not too confident; the large mills are all going carefully on production of spring lines, as they regard spring with some uncertainty. One healthy sign is a disposition toward the more expensive lines; one important broadsilk house reports a good call for printed and plain flat crepe in the $2.40 range; this call comes for the most part from piece goods buyers.

Dark Grounds Favored

Orders for spring prints are light but steady, and dark grounds with bright effects are preferred. The favored grounds are black, navy, green and brown, mostly with small floral patterns. Buyers show some interest in polka dots, but these fabrics are not expected to move actively before January.

Production and Stocks

Current output of mills is mostly spring printed flat crepes and crepe-de-Chines and shantungs; the shantung production is being held back by the big mills, due to fear of overproduction, but the small firms are believed to be running actively on these fabrics. Stocks are low, and most of the winter lines are cleared. Metals are selling at much-reduced prices and find few takers; weavers regard the stock situation for the year-end as healthy.

Less Distress Goods

The bulk of distress merchandise which so weakened the market some months ago has been assimilated, and the tone is proportionately stronger; but moderate quantities of these stocks are still procurable, causing price uneasiness on certain numbers.

Rayon Surplus Increases

Further Talk of January Price Cut Slows Up Sales

SPORADIC orders, mostly of the fill-in variety, continue to reach rayon yarn producers, but there is no real disposition to buy, and the consuming industries have almost completely abandoned the exercise of their 60-day price guarantee privilege. Rumors of a January price cut are still prevalent despite the insistence of producers that no such action will be taken, and this uncertainty has served to further slacken an already slow market; several sales executives this week said that expectation of a January price cut was the chief obstacle to future business. Only the extreme minimum of January business is being placed at present. The return from Europe of several leading producers who had participated in the rayon stabilization conference in London, and who on their arrival home confined themselves to non-committing statements of an optimistic nature, has failed to build confidence.

Surplus Increases

December sales slant downward, and the total promises to be considerably below conservative estimates of a month ago. As production had been gauged on the earlier estimates, there are strong indications that year-end stocks will be above expectations. Rayon producers are consoling themselves with hope for improvement in January. It is felt that the consuming industries will be obliged to buy actively, irrespective of price developments, as the stocks of yarn in mills are far below spring requirements. The prospects regarding the rayon surplus in producers' hands are not encouraging; reports a month ago to the effect that the major producers were running between 50 and 65% of capacity, had pointed to fairly satisfactory inventories, but it now appears that the curtailment was not drastic enough. No one in the market would offer any estimate of the present surplus, but the let-up in sales would indicate the figure to be nearer 30,000,000 than the total of 25,000,000 which was accepted in October as a reasonable figure.

Rayon Waste Deadlocked

Rayon waste demand slumped again this week, and sales were practically negligible. Dealers report some effort by manufacturers to get prices down, but they are resisting this influence as they regard it entirely as a bargain proposition. The fact seems to be that the manufacturers themselves have suspended production for the holiday period and for that reason have no need for waste. No improvement is looked for prior to January.

Knit Goods Futures Slow

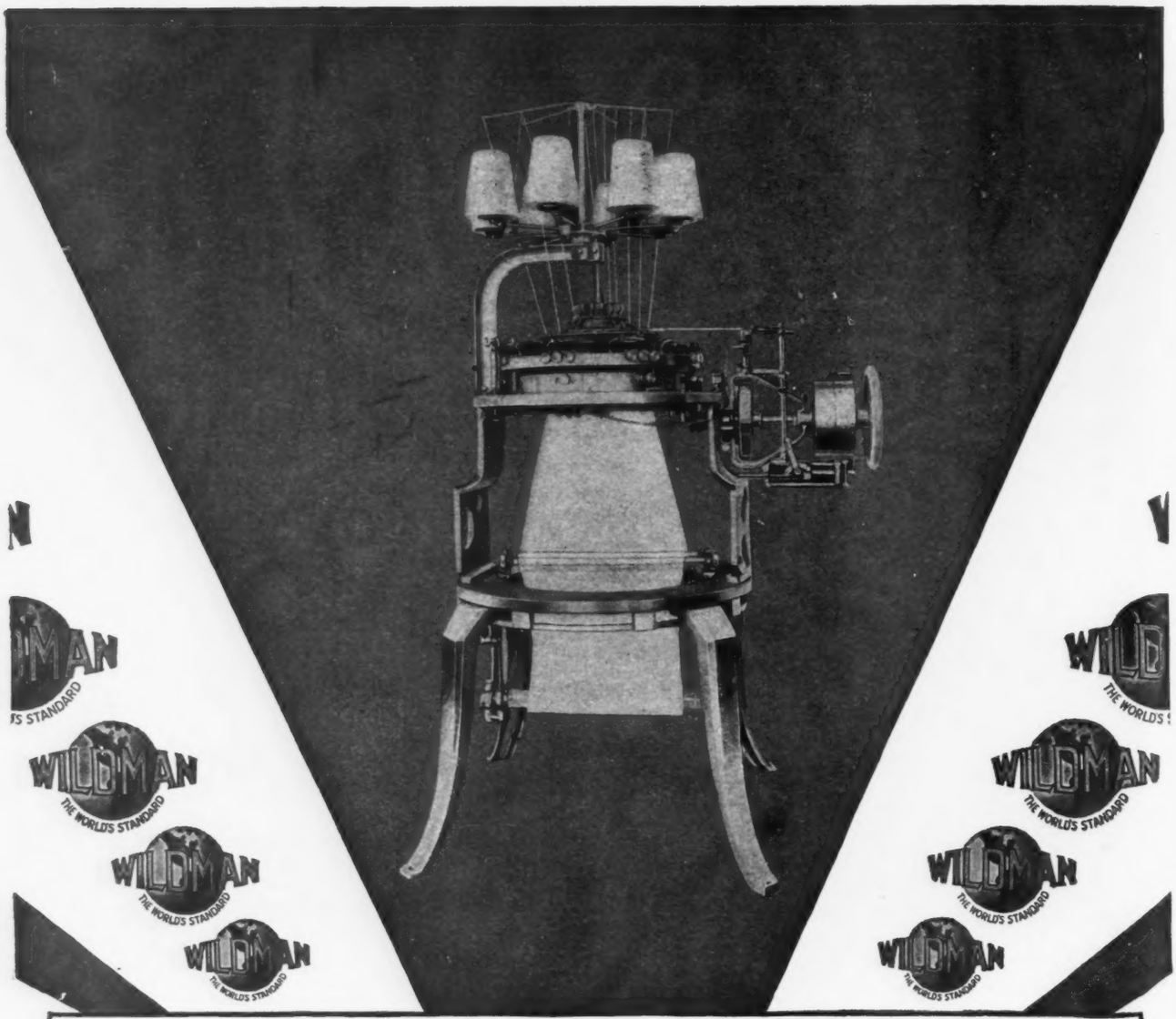
Distributors Delay Spring Orders To Keep Inventories Down

OCCASIONAL spurts of last-minute interest in duplicate holiday business which is growing less each day, and a general policy of procrastination on spring business are the current characteristics of the knit goods market. Swimsuit coverage is the one outstanding exception, as regards future buying; a good percentage of 1931 bathing-suit business has been placed, and while orders dropped decidedly during the past few days, mill men are satisfied with their present position, and are resigned to several weeks of quiet.

Spring sweaters are very backward; normally the bulk of the business has been placed by this time, but this year few mills have more than a smattering of orders on their books. Current call stresses jersey ribbed numbers and men's and boys' crickets. Production is going ahead cautiously, and is limited to samples for the most part. Hope of the producers of heavyweight sweaters that the advent of the holidays would precipitate a good last-minute demand have been only partially fulfilled. A few spot orders for the winter lines were placed this week, but heavyweight sweaters appear to have ended their season so far as any sizeable call is concerned.

Hosiery Sluggish

Hosiery interest is sluggish at all ends. Men's half-hose enjoyed some spot movement up to last Saturday, but the call has waned and now even the most popular lines are slow. There is a scattered call for 35c. and 50c. sellers, but only as stock fill-ins, and hosiery producers do not look for any pick-up in half-hose until after the holidays. Retailers are determined to end the year with abnormally low inventories, and refuse to anticipate requirements even



For *quality* Rayon, use the
quality machine—Wildman

WILDMAN MANUFACTURING CO.
Norristown, Pa.

WILDMAN
SPRING NEEDLE BODY MACHINE

for a few weeks. Mill men commented that ordinarily, they would now be selling for next fall and would have a good part of their spring hosiery business booked, whereas 1931 fall purchases now are not even thought of, and it takes plenty of persuasion to get a spring order out of either a jobber or a retailer. Infants' hosiery and anklets are selling into January, which is a good showing all things considered. Women's full-fashioned and seamless are on a strictly spot basis, and even these orders are small. In the field of spot buying, men's fancies, made to retail at 35c. show up well, and some mills have enjoyed a steady call for holiday fill-ins. The prospects for women's full-fashioned for spring are far from encouraging. It is clear that the bulk of the medium-sized and small mills will write heavy inventories.

Mills Overconfident

There is too much confidence in spring prospects for full-fashioned, and while mill men as a group commend the recommendation of the National Association that they curtail, they are not following out that recommendation as thoroughly as they should. Full-fashioned stocks are unjustifiably large and the prospects would be much improved if the smaller mills took concerted action toward reduced output. Half-hose is in a better position, though here too production for stocks is larger than spring prospects warrant.

All underwear lines have slowed up, but there is still a moderate interest in heavyweights. Recent announcements of heavyweight price cuts have not weakened the market as a whole, and it is not likely that there will be a general cut. Mill men fail to see the need for such action; production of winter-weights has been cautions and stocks are light for the most part, and with even a fair call for the first part of January the stocks could be pretty well cleared. Spring lines are moving slowly; buyers are averse to writing these purchases into their 1930 inventories and mill men therefore expect the bulk of spring business to come in late January.

Textiles Feature Boston Auctions

Approach of Year-End Brings Liquidation and Loss-Taking

OFFERINGS of textile securities featured the Boston stock auctions on Wednesday of this week, when a total of 1,368 shares were sold. Among the outstanding sales were 70 Berkshire Associates preferred at 25, off 47; 198 Berkshire Associates common at 4, off 4⅛; 60 Hill at 9, off 9; 22 Merrimack common at 38, off 7½; and 310 Cordaville Woolen 2nd preferred at $5 for the lot.

Knox Woolen Cuts Melon

Stockholders of the Knox Woolen Co., felt and woolen specialty manufacturers, Camden, Maine, will receive approximately $573,300 in the form of an extra dividend of 97½%, declared by the board of directors. Treasurer C. W. Babb, in a letter to stockholders informing them of the dividend, said the company "has shown substantial profits yearly, in excess of dividends paid. These profits have increased the working capital to such an extent that it has now reached an amount in excess of the needs of the business."

Boston Mfg. Receivers Report

Receivers George W. Summersby and L. R. Chamberlin of the Boston Mfg. Co., Waltham, Mass., have filed reports in Superior Court, Boston, asking authority to settle for $27,500 the two $500,000 suits brought against the company by Waltham Bleachery & Dye Works for damages from alleged breach of an old contract to allow a certain quantity of water to flow over its dam on the Charles River to the bleachery. They also seek approval of their allowance of $1,175,704 of the claim for $1,213,276 made by Amory, Browne & Co., Boston, selling agents for the mill.

In their report of cash receipts and disbursements the receivers state that when they were appointed cash on hand totaled $207,972 and that from then until Nov. 29 last they collected $455,769, making total receipts $663,741; payments totaled $77,269, leaving balance on Nov. 29 of $586,472. Of cash receipts, $310,005 was from sale of cloth and yarn, and $130,575 from sale of power, real estate, machinery, supplies, etc.

Nashua Passes Dividend

Directors of Nashua (N. H.) Mfg. Co. have voted to pass the dividend on preferred stock due Jan. 2, 1931. This action was taken in view of present business conditions and in order to conserve assets. The dividend is cumulative.

West Point Surplus Off

A comparison of the Oct. 31, 1930, balance sheet of West Point (Ga.) Mfg. Co., with that of a year ago indicates a shrinkage in surplus account of $1,085,857 to $9,432,334. During the year the company sold at a profit its two hydro-electric properties to the Georgia Power Co., paid $648,000 in dividends and, in addition, charged about $600,000 to depreciation. A shrinkage of approximately 50% in raw material values, and a decline in sales of 17% were major factors contributing to the surplus decrease. For the 1929 fiscal year earnings of $1,093,846 were reported, equal to $15.19 per share on 72,000 shares, and for 1928, $457,982, or $6.36 per share. Net working capital on Oct. 31, 1930, totaled $4,788,158 as compared with $4,860,062 the year before, and the ratio of quick assets to quick liabilities had improved from 2.1 to 1 to 3 to 1.

Lane Cotton Mills Statement

The Lane Cotton Mills Co., New Orleans, La., reported profits for the quarter ended Sept. 30, at $75,545, as compared with profits of $136,422 for the same period of 1929. The report also showed profits of $361,173 for the nine months ended Sept. 30. In 1929, the profits for the same period were, $454,962.

Final Liquidation Dividend

Salmon Mills (N. H.) Mfg. Co., which has been in the process of liquidation since 1926, has declared a final dividend of $3.45 per share, payable Dec. 10 to stock of record of that date. This brings total disbursement to $42.45 a share, $35 being paid in July 1927 and $4 in February 1928. Capitalization consists of 13,463 shares, so a total of $571,514 was realized in liquidation. All of the company's physical property, including water power, was sold to the New England Public Service Co., and the mill is now being operated by the Tire Fabric Corp.

Southern Stocks Slightly Lower

CHARLOTTE, N. C.—The average bid price of 25 common stocks of southern cotton mills closed for the week at $60.28 or a net decline of 64c. per share for the week according to the weekly market report as furnished by R. S. Dickson & Co.

Boston Stock Auctions

The following sales of textile shares were made at Wednesday's auctions:

Shrs.	Mill	Par	Price	Change
45	Associated Textile	...	35–36½	...
22	Merrimack, com	100	38	—7½
55	Boston Mfg. pfd	100	3 for lot	....
7	American Linen	100	1	....
6	Lancaster, pfd	100	5½	—1½
45	Weetamoe	100	1	....
6	Fitchburg Duck, com.	100	201	....
75	U. S. Worsted, com	100	10 for lot	....
10	American Mfg. pfd	100	52	+2
207	Sharp, com	100	25c. for lot	....
2	Nashua, com	100	10½	—6½
310	Cordaville Woolen, 2nd pfd	...	5 for lot	....
60	Hill	100	9	—9
50	Newmarket	100	15	....
100	Conn. Mills A	10	2 for lot	....
70	Berkshire Associates, pfd	100	25	—47
198	Berkshire Associates, com	...	4	—4½
50	United Elastic, ex. div.	...	20	....
50	Boston Woven Hose, com	100	60	— ½
1368	Total			

QUOTATIONS

at close of business, Dec. 17, 1930
Prices cover average qualities unless otherwise stated

Cotton Goods

	Dec. 17	Dec. 10	Dec. 18 1929
PRINT CLOTHS			
27 -in., 64x60, 7.60	3¾–3¾c.	4–4¼c.	4¾c.
38½-in., 64x60, 5.35	5–5¼c.	5¼c.	6½–6¾c.
39 -in., 68x72, 4.75	5¼– 6c.	6¼c.	7¼–7¼c.
39 -in., 72x76, 4.25	6¼c.	6¼c.	8½–8¾c.
39 -in., 80x80, 4.00	7¼–7¼c.	7¼–7¾c.	9¼–9¾c.
BROWN SHEETINGS			
36-in., 56x60, 4.00	6¼c.	6¼c.	8¼c.
36-in., 48x48, 3.00	7c.	7c.	9¼c.
37-in., 48x48, 4.00	5¼c.	5¼c.	7¼–7¾c.
PAJAMA CHECKS			
36½-in., 72x80, 4.70.	6c.	6½c.	8–8½c.
36½-in., 64x60, 5.75.	5c.	5½c.	7¼c.
MISCELLANEOUS			
Drills, 37-in., 3 yd.	7⅛c.	7⅛c.	10⅜c.
Denims, 2.20	12½c.	12½c.	15c.
Tickings, 8 oz.	16 c.	16 c.	20–21c.
Standard prints	7⅛c.	7⅛c.	9⅛c.
Eastern staple ginghams, 27-in.	8 c.	8 c.	10 c.

Cotton Waste

Peeler comber	8½— 8¾
Peeler strips	7¼— 8
Sak. comber	8 — 8½
Choice willowed fly	4½— 5
Choice willowed picker	3 — 4½
Sak. strips	10½—11
Linters (mill run)	2½— 3½
White spooler (single)	7¼— 8

Cotton Yarn

CARDED (Average Quality)
Double Carded 2c.—4c. higher according to quality

SINGLE SKEINS OR TUBES (Warp Twist)

4s to 8s	$0.19 – .19½	22s	$0.22½
10s	.19½– .20	24s	– .23½
12s	– .20	26s	– .24½
16s	.20 – .20½	30s	.25½– .26
20s	.21 – .21½	40s ex. qual.	– 38

TWO-PLY SKEINS AND TUBES

8s-2	$0.19½– .21	26s-2	$0.25
10s-2	.19½– .20	30s-2	.26 – 26½
12s-2	– .20	36s-2	– .32
14s-2	– .20½	40s-2	.33 – .34
16s-2	– .21	49s-2 hi.brk.	.37 – .38
20s-2	– .21½	50s-2	– .42
24s-2	– .24	60s-2	– .52

SINGLE WARPS

10s	$0.19	24s	$0.23½
12s	– .19½	26s	– .24½
14s	.19½– .20	30s	– .26½
16s	.20 – .20½	40s ex.qual.	.38 – .39
20s	.21 – .21½		

TWO-PLY WARPS

8s-2	$0.19½	24s-2	$0.24½
10s-2	– .20	26s-2	– .25½
12s-2	– .20½	30s-2	.26½– .27
14s-2	.20½– .21	40s-2 ordin.	.34 – .35
16s-2	– .21	50s-2	– .43
20s-2	.21½– .22	60s-2	– .53

8s-3 and 4-ply skeins and tubes; tinged, 17; white, 19; waste, 16½

HOSIERY CONES (Frame Spun)

8s	$0.18½– .19	22s	$0.22 – .22½
10s	– .19	24s	.22½– .23
12s	– .19½	26s	.23 – .23½
14s	– .20	30s tying	.25 – .25½
16s	– .20½	30s reg.	.26½– .27
18s	– .21	30s ex.qual.	.28½– .29½
20s	– .21½	40s	– .35

COMBED PEELER (Average Quality)

TWO-PLY—(Knitting Twist) Cones

20s-2	$0.34 – .35	60s-2	$0.54 – .55
30s-2	.39 – .40	70s-2	.64 – .65
36s-2	.40 – .41	80s-2	.76 – .78
40s-2	.42 – .43	90s-2	.92 – .95
50s-2	.47 – .48	100s-2	1.15 –1.20

WARPS, SKEINS AND CONES

TWO-PLY—(Warp Twist)

20s-2	$0.35	60s-2	$0.55
30s-2	– .40	70s-2	– .65
36s-2	– .41	80s-2	.77 – .80
40s-2	– .43	90s-2	.95 –1.00
50s-2	– .58	100s-2	1.18 –1.20

SINGLES

12s	$0.27½	30s	$0.37½
14s	–.28	38s	– .40
16s	–.28½	40s	.40½– .41
18s	–.29	50s	.46½– .47
20s	–.30	60s	.53½– .54
24s	–.32½	70s	– .64
28s	–.36	80s	– .75

MERCERIZED CONES—(Combed, Ungassed)

26s-2	$0.50 – .51	90s-2	$1.29 –1.32
30s-2	.52 – .53	100s-2	1.59 –1.61
36s-2	.55 – .56	120s-2	1.98 –2.05
40s-2	.58 – .59	30s	.63 – .65
45s-2	.60 – .61	40s	.68 – .70
50s-2	.62 – .64	50s	.75 – .77
60s-2	.70 – .72	60s	.83 – .85
70s-2	.82 – .84	70s	.95 – .97
80s-2	.94 – .98	80s	1.17 –1.19

Cotton Prices and Statistics

FLUCTUATIONS OF FUTURES

	Closed Dec. 11	For Week High	For Week Low	Closed Dec. 17	Net Chge.
December	9.81	9.90	9.30	9.81	.....
January	9.93	10.00	9.30	9.81	—.12
February	10.05	10.28	9.49	9.97	—.08
March	10.20	10.20	9.56	10.14	—.06
April	10.31	10.23	9.77	10.23	—.08
May	10.47	10.56	9.83	10.40	—.07
June	10.54	10.54	9.99	10.46	—.08
July	10.64	10.73	10.02	10.60	—.04
August	10.69	10.72	10.16	10.72	+.03
September	10.75	10.75	10.23	10.72	—.03
October	10.83	10.95	10.23	10.85	+.02

SPOT FLUCTUATIONS FOR WEEK
(Middling)

	New York	New Orleans	Liverpool
Friday, Dec. 12	9.85	9.45	5.43
Saturday, Dec. 13	9.60	9.20	5.26
Monday, Dec. 15	9.45	9.05	5.12
Tuesday, Dec. 16	9.60	9.23	5.21
Wednesday, Dec. 17	9.95	9.61	5.24
Thursday, Dec. 18	9.80	9.44	5.41

FOREIGN COTTONS
Egyptian Cotton

Alexandria Exchange, Dec. 17		Change
January Sak	14.12	—0.23
February uppers	10.30	—0.45

Dec.-Jan. Shipment c. i. f. Boston.
(Tariff not included)

Fully good fair Sak	17.30
Fully good fair to good Uppers	12.80

(By Anderson, Clayton & Co.)

Foreign cottons	F. O. B. New York, Cents
Peruvian Tanguis Strict Middling	19
Peruvian Pima No. 1	23
Peruvian Moderate Rough	16
Peruvian Full Rough	21
China Tientsin No. 1	9½
India Rough	7 to 10
India Smooth	7 to 10

(By Gerald G. Loeb, New York.)

BASIS MIDDLING

	Saturday, Dec. 13	Saturday, Dec. 6
10 markets average	8.90	9.73
Memphis	8.25	9.20

PREMIUM STAPLES
First Sales from Factors Tables at Memphis

Grade Strict Middling	Prices Nominal
1⅛-in	11.00@11.30c.
1 3/16-in	12.50@12.80c.
1¼-in	17.35@17.60c.

CURRENT SALES

	For Week	Prev. Week	Week Before
Memphis total	18,666	20,846	20,458
F.o.b. included in total	17,216	19,744	19,118
10 markets	98,014	113,108	123,006

MEMPHIS RECEIPTS, SHIPMENTS, ETC.

	For Week	Last Year	Year Before
Net receipts	24,217	28,726	30,677
Gross receipts	51,482	68,633	65,093
Total since Aug. 1, net	492,146	617,958	452,860
Shipments	45,934	63,050	61,567
Total since Aug. 1	580,780	841,488	718,486
Total stock	401,177	391,500	226,848
Increase for week	5,548	5,583	3,535
Unsold stock in hands of Memphis factors	74,667	51,453	.....
Decrease for week	1,382	10,114	.....

AVERAGE PRICE DECEMBER SHIPMENT
HARD WESTERN COTTON
F. o. b. New England

	Middling	St. Middling
1 in	12½–12½c.	12½–12½c.
1⅛ in	12¾–13¼c.	13¼–13¾c.
1⅛ in	14½–15 c.	15½–16 c.
1¼ in	18½–20½c.	19½–21½c.

Basis on New York, New January 10.07c.

SPOT FLUCTUATIONS AND STOCKS

Market	Middling Dec. 10	Middling Dec. 17	Sales	Stocks This Week	Stocks Last Year
Galveston	9.85	9.65	3,479	695,624	509,750
New Orleans	9.78	9.61	12,330	772,721	510,923
Mobile	9.30	9.05	390	180,264	61,463
Savannah	9.57	9.34	1,742	302,864	85,522
Norfolk	9.81	9.63	1,741	100,647	72,098
New York	10.15	9.95	500	231,434	97,801
Augusta	9.38	9.19	5,979	141,199	109,940
Memphis	8.80	8.60	15,729	399,676	397,013
St. Louis	9.15	8.65	.....	11,452	10,863
Houston	9.85	9.65	27,376	1,471,765	1,163,623
Dallas	9.20	9.00	25,632	43,067	11,335

DIFFERENCES ON AND OFF MIDDLING

	Dallas	Memphis	Montgomery	Augusta	Average
WHITE GRADES					
M.F	.75†	1.00†	.85†	.75†	0.89†
S.G.M	.60†	.75†	.75†	.63†	.70†
G.M	.50†	.50†	.60†	.50†	.51†
S.M	.35†	.25†	.35†	.25†	.30†
S.L.M	.75*	.75*	.65*	.50*	.69*
L.M	1.50*	1.75*	1.50*	2.25*	1.60*
S.G.O.**	2.50*	2.75*	2.50*	3.50*	2.56*
G.O	3.50*	4.00*	3.50*	4.50*	3.55*
YELLOW TINGED					
G.M	0.50*	0.75*	0.50*	0.50*	0.58*
S.M	1.00*	1.25*	1.00*	1.00*	1.05*
M.**	1.75*	2.00*	1.50*	1.50*	1.68*
S.L.M	2.50*	2.75*	2.25*	2.25*	2.37*
L.M.**	3.50*	4.00*	3.00*	3.00*	3.30
YELLOW STAINED					
G.M	1.50*	1.75*	1.50*	1.50*	1.58*
S.M.**	2.25*	2.50*	2.50*	2.50*	2.40*
M.**	3.00*	3.25*	3.50*	3.50*	3.23*
BLUE STAINED					
G M.**	1.75*	2.00*	1.75*	1.75*	1.78*
S.M.**	2.25*	2.75*	2.75*	2.75*	2.48*
M.**	3.00*	3.25*	3.75*	3.75*	3.28*

**Grades not deliverable on contract. †On Middling *Off Middling.

Wool

OHIO, PENNSYLVANIA AND WEST VIRGINIA (IN GREASE)

Fine delne..	$0.29 –$0.30	⅜ blood.....	$0.28 –$0.29
Fine clthg ..	.24 – .25	½ blood.....	.28 – .29
¼ blood.....	.29 – .30		

TEXAS AND CALIFORNIA (CLEAN BASIS)

Texas, 12 months	$0.71 –$0.73
California, Northern	.61 – .63

PULLED—EASTERN (CLEAN BASIS)

AA.	$0.70 –$0.73	B-Super...	$0.45 –$0.52
A-Super....	.58 – .60	C-Super...	.43 – .45

MONTANA, IDAHO AND WYOMING (CLEAN BASIS)

Staple fine	$0.72 –$0.75
Staple ⅜ bld.	.68 – .70
Fine and fine medium	.68 – .70
⅜ blood	.58 – .60
¼ blood	.55 – .57

MOHAIR—DOMESTIC

Best Carding	$0.32 –$0.35
Best combing	.45 – .48

MOHAIR FOREIGN (IN BOND)

Turkey fair, average	$0.18 –$0.20
Cape firsts	.20 – .22

FOREIGN CLOTHING AND COMBING (CLEAN BASIS IN BOND)

Australia:	
70s	$0.60 –$0.63
64s	.45 – .48
58s-60s	.40 – .42
(IN GREASE)	
Montevideo:	
58s-60s	$0.19 –$0.20
56s	.19 – .20
50s	.17 – .18
Buenos Aires:	
4s, 40-44s	$0.12 –$0.13
5s, 36-40s	.11 – .12

FOREIGN CARPET (GREASE BASIS IN BOND)

Aleppo	$0.25 –$0.26
China: Combing No. 1	.14½– .15
China Filling Fleece	.13 – .14
Szechuen ass't	.14 – .14½
Cordova	.13 – .14
Scotch black face	.14 – .15
East India: Kandahar	.20 – .22
Vican'r	.24 – .26
Joria	.23 – .25

Worsted Yarns

ENGLISH SYSTEM WEAVING

2-20s 36s	$0.87½– .90
2-24s 40s	.97½–1.00
2-26s 44s	1.05 –1.07½
2-28s 46s	1.10 –1.12½
2-30s 48s	1.15 –1.17½
2-32s 50s	1.20 –1.25

(Single yarns 5c. less than above)

2-36s, 58s	$1.32½–1.35
2-40s, 60s	1.40 –1.45
2-40s, 64s	1.45 –1.50
2-50s, 66s	1.60 –1.65
2-60s, 70s	1.97½–2.00

ENGLISH SYSTEM KNITTING

2-20s, 44s in oil	$0.87½– .90
2-20s, 48s in oil	– .95
2-20s, 50s in oil	.97½–1.00
2-20s, 56s in oil	1.07½–1.10
2-20s, 60s in oil	–1.27½
2-20s, 64s in oil	1.32 –1.35
1-15s, 46s dyed	–1.10
1-15s, 48s dyed	–1.12½
1-15s, 50s dyed	–1.15

(Oil yarns 17½c. less)

FRENCH SYSTEM

1-20s, 58s	$1.15 –$1.17½
1-20s, 60s	1.20 – 1.22½
1-18s, 64s, Dyed	1.42½– 1.45
1-26s, 64s	1.22½– 1.25
1-30s, 60s, Warp	1.30 – 1.32½
1-30s, 64s, Warp	1.35 – 1.37½
2-30s, 64s, Fancy mixes	1.62½– 1.65
2-40s, 64s, Zephyrs	– 1.50
1-50s, 66s	1.60 – 1.62½
2-50s, 66s	1.75 – 1.80
1-60s, 70s	1.95 – 1.97½
2-60s, 70s	2.10 – 2.15

FRENCH SPUN MERINO WHITE

1-30s, 50-50-58s on cops	$1.02½–$1.05
1-40s, 50-50-60s on cops	1.15 – 1.17½
1-40s, 50-50-64s on cops	1.17½– 1.20
1-40s, 50-50-64s Australian cops	1.25 – 1.30

Underwear mixes, 3c. additional.
Solid color, 35c. additional.

Tops and Noils

TOPS—BOSTON

Fine (64-66s)	$0.93–$0.95
Half-blood (60-62s)	.87– .89
High ¾ blood (58s)	.80– .82
Aver. ¾ blood (56s)	.78– .80
Low ¾ blood	.73– .75
High ½ blood (50s)	.70– .72
46s S. A. and N. Z.	.60– .63
44s S. A. and N. Z.	.58– .60
40s S. A. and N. Z.	.58– .60

TOPS—BRADFORD, ENG. (DEC. 11)

Fine (70s)	27½d	¾ bld. (56s)	15½d
Fine (64s)	24 d	½ bld. (50s)	13 d
½ bld. (60s)	21 d	Cross-bred (46s)	10½d
⅜ bld. low (58s)	18½d		

NOILS—BOSTON

Fine	$0.51–$0.53	High ½ bld.	$0.42–$0.45
Half-bld.	.48– .52	Low noils	.35– .38
Aver. ¾ bld.	.45– .48	Medium colored	.35– .37
Fine colored.	.43– .45		

Wool Substitutes

WOOL WASTE

Lap, fine white	$0.70 –$0.72
Lap, fine colored	.51 – .53
Hard ends, fine white	.53 – .55
Hard ends, ½ blood white	.36 – .38
Hard ends, fine colored	.23 – .25
Hard ends, medium colored	.18 – .20
Card, fine white	.28 – .30
Burr, fine Carbonizing	.33 – .35

OLD WOOLEN RAGS (GRADED FOR MFRS.)

Merinos, Coarse Light	$0.06 –$0.07
Merinos, Fine Dark	.04½– .05
Merinos, Fine Light	.12½– .13
Serges, Blue	.06½– .07
Serges, Black	.07 – .07½
Serges, Red	.10½– .11
Knit, White	.21 – .22
Knit, red	.15 – .16
Knit, Light Hoods	.13 – .14
Worsted, Light	.05½– .06
Worsted, Blue	.07 – .07½
Worsted, Black	.07 – .07½

Silk Yarns

THROWN SILK (60 day basis)

	Nominal
Japan organzine, 2 thd. spec. gd. XX. sk. 85%	$4.05
Japan organzine, 2 thd. sp. crack. sk. 81%	3.70
Japan crepe, 3 thd. gd. XX bob. 83%	3.90
Japan crepe, 3 thd. sp. crack. bob. 81%	3.95
Japan crepe, 4 thd. crack bobbins, 78%	3.85
Japan grenadine, 4 thd. sp. grand singles, 87%	6.00
Japan grenadine 4 thd. 85%	5.65
Japan grenadine 3 thd. 90%	6.90
Canton crepe, 3 and 4 thd. ns. 14/16 on bobbins	3.00
Hosiery tram, 3 thd. Japan 90%	5.00
Hosiery tram, 5 thd. Japan, 85%	4.05
Hosiery tram, crack XX 78%	3.10

SPUN SILK YARNS (Terms: net 30)

40/2	$3.15	60/2	$3.50
50/2	3.35	62/1	2.35

Raw Silk

(60 day basis)
Prices Nominal

	13/15 White	20/22 White	20/22 Yellow
Super Grand, 86/88%	$3.80	$2.90	$2.90
Special Grand, 85%	3.15	2.80	2.80
Grand XX, 83%	2.90	2.70	2.70
Special Crack, 81%	2.70	2.65	2.65
Crack XX, 78%	2.55	2.60	2.60
Extra Extra, 73%	2.60	2.50	2.50
Best Extra, 68%	2.50	2.40	2.40

Canton filature, new style, 14/16	$1.95
Canton filature, new style, 20/22	1.80
Tussah filature, 8 cocoon	1.25

NATIONAL RAW SILK EXCHANGE

	Close Dec. 10	For the Week High	For the Week Low	Close Dec. 16	Net Chge.
Decemoer	2.39	2.42	2.32	2.42	+.03
January	2.39	2.43	2.30	2.35	+.04
February	2.41	2.44	2.31	2.35	+.06
March	2.42	2.43	2.28	2.35	+.07
April	2.40	2.44	2.28	2.34	+.06
May	2.41	2.44	2.29	2.34	+.07
June	2.39	2.43	2.28	2.32	+.07
July	2.40	2.43	2.28	2.33	+.07

Dec. 10 to Dec. 16, total contracts, 462. Total number of bales, 4,620. Total approximate value, $12,012.00. Trading unit is Crack XX, 13-15, white 78%.

Domestic Rayon

VISCOSE PROCESS

Denier	Filament	First	Second
50	14	$2.15	$1.95
75	18	1.60	1.50
75	30	1.70	1.60
100	18	1.25	1.15
100	40	1.30	1.20
125	36–50	1.20	1.10
150	24–30	.95	.90
150	36–40	1.00	.95
150	60	1.15	1.10
150	75–90	1.20	1.15
170	24–27	.95	.90
170	60	1.15	1.10
200	30	.90	.85
200	35–40	.90	.85
200	75–80	1.10	1.05
300	44–60	.78	.75
450	54–60	.78	.75
600	72–96	.78	.75
900	100–144	.78	.75

NITRO-CELLULOSE PROCESS

Denier	First Qual.	Second Qual.	Denier	First Qual.	Second Qual.
75	$1.60	$1.50	150	$0.95	$0.90
100	1.25	1.15	175	.95	.90
125	1.20	1.10			

CUPRAMMONIUM PROCESS

Denier	Filament	Price	Denier	Filament	Price
15	24	$3.10	65	45	$2.00
25	24	2.85	80	60	1.70
30	24	2.60	100	75	1.40
40	30	2.40	120	90	1.30
52	30	2.20	150	112	1.25
			180	135	1.10

ACETATE PROCESS

Denier	Price	Denier	Price
45	$2.25 2.75	120	$1.90
55	2.05–2.55	140	1.30
65	2.45	150	1.40–1.85
75	1.80–2.70	200	1.55
100	1.65–2.45	300	1.50

Rayon Waste

Prices Nominal

Open bleached waste	–$0.15
Open unbleached waste	...– .13
Bleached thread waste (mfs.)	...– .10
Bleached thread waste (misc.)	...– .09
Colored thread waste	...– .08
Colored clips	...– .07

CONVERTED RAYON WASTE

Bleached tops	–$0.45
Unbleached tops	...– .40
Bleached noils	...– .15
Bleached garnetts	...– .16
Unbleached garnetts	...– .15
Colored garnetts	...– .13

Silk Waste

Kibizzo Kakai Grand XX	$0.54
Kibizzo Kakai Triple Extra	.48
Frison Grand Double	.52½
Pierced Cocoons	.53

Southern Mill Securities

(A. M. Law & Co., Spartanburg)

	Bid	Asked
Abbeville Cotton Mills	..	40
Anderson Cotton Mills	60	65
Arcade Cotton Mills	..	50
Arcadia Mills	..	200
Arcadia Mills, pfd	85	90
Arkwright Mills	..	50
Augusta Factory, Ga	..	20
Avondale Mills, Ala	700	900
Beaumont Mfg. Co	200	250
Beaumont Mfg. Co 7% pfd	95	100
Belton Mills	..	20
Belton Mills, pfd	60	65
Bibb Mfg. Co	95	100
Brandon Corp., A	..	40
Brandon Corp., B	..	6
Brandon Corp., pfd	..	75
Calhoun Mills	..	90
Chadwick-Hoskins Co. (par, $25)	7	9
Chesnee Mills	..	40
Chiquola Mfg. Co	..	200
Chiquola Mfg. Co., pfd	83	88
Clifton Mfg. Co	88	92
Clinton Cotton Mills	..	220
Columbus Mfg. Co., Ga	55	65
Cowpens Mills	..	20
D.E. Converse Co	..	80
Dallas Mfg. Co., Ala	35	40
Darlington Mfg. Co	..	50
Drayton Mills	70	..
Dunean Mills	100	110
Dunean Mills, pfd	92	97
Eagle & Phoenix Mills, Ga	..	60
Easley Cotton Mills, pfd	..	35
Enterprise Mfg. Co., Ga	..	100
Fairforest Finishing Co., serial notes	95	100
Florence Mills	40	45
Florence Mills, Pfd	97	100
Gaffney Mfg. Co	..	20
Gainesville Cotton Mills, Ga	..	125
Glenwood Mills	85	95
Gluck Mills	55	61
Gossett Mills	..	50
Graniteville Mfg. Co	..	90
Greenwood Cotton Mills	500	..
Grendel Mills, pfd. (par, $50)	40	45
Hamrick Mills	..	90
Hartsville Cotton Mills	120	130
Hunter Mfg. & Com. Co., pfd	67	71
Industrial Cotton Mills Co., pfd	..	30
Inman Mills	100	120
Inman Mills, pfd	95	100
Judson Mills, A, pfd	90	95
Judson Mills, B, pfd	88	93
King, John P. Mfg. Co., Ga	80	90
Lancaster Cotton Mills	225	..
Laurens Cotton Mills	..	110
Limestone Cotton Mills	..	90
Lydia Cotton Mills, serial notes	94	100
Marion Mfg. Co., N. C	..	100
Marlboro Mills	..	15
Mills Mill, pfd	80	90
Mollohon Mfg. Co., pfd	90	100
Monarch Mills	..	85
Musgrove Cotton Mills	..	20
Newberry Cotton Mills	95	100
Ninety-six Mills	400	..
Norris Cotton Mills	..	30
Orr Cotton Mills	..	50
Orr Cotton Mills, pfd	60	65
Pacolet Mfg. Co	..	60
Pacolet Mfg. Co., pfd	..	75
Panola Cotton Mills, Class A, pfd. (par, $60)	45	50
Pickens Cotton Mills	105	115
Piedmont Mfg. Co	..	95
Piedmont Print Works (no par)	..	10
Piedmont Print Works, pfd	..	60
Poe, F. W. Mfg. Co	19	22
Riverside & Dan River Mills	9	10
Riverside & Dan River Mills, 6% pfd	60	65
Saxon Mills	..	50
Sibley Mfg. Co., Ga	50	60
Southern Bleachery	..	20
Southern Bleachery, pfd	..	70
Southern Bleachery, serial notes	95	100
Southern Franklin Process	18	22
Southern Franklin Process, pfd	95	100
Southern Worsted Corp., pfd	70	80
Spartan Mills	..	170
Spencer Corp., serial notes	95	100
Union-Buffalo Mills	..	30
Union-Buffalo Mills, 1st pfd	64	63
Union Buffalo Mills, 2nd pfd	..	32
Victor-Monaghan Co	51	53
Victor-Monaghan Co., pfd	100	110
Wallace Mfg. Co	..	100
Ware Shoals Mfg. Co	120	130
Whitney Mfg. Co	..	20
Woodside Cotton Mills Co	..	30
Woodside Cotton Mills, pfd	..	35
Yarns Corp. of America, gold bonds	95	100

Fall River Mill Stocks

(G. M. Haffards & Co., Fall River)

	Bid	Asked
Algonquin Printing Co	300	320
Barnard Mfg. Co	..	10
Berkshire (com.)	..	8
Berkshire (pfd.)	..	40
Bourne Mills	11	..
Border City Mfg. Co	3	..
Charlton Mills	..	50
Cornell Mills	..	..
Davol Mills	..	5
Flint Mills	40	..
King Philip Mills	3	..
Laurel Lake Mills (com.)	..	5
Luther Mfg. Co	79	..
Merchants Mfg. Co	..	..
Narragansett Mills	..	5
Osborn Mills, Inc	..	..
Pepperell Mfg	83	85
Pilgrim Mills	28	..
Richard Borden Mfg. Co	..	3
Sagamore Mfg. Co	59	..
Shove Mills	..	5
Stafford Mills	..	1
Stevens Mfg. Co	28	..
Union Cotton Mfg. Co	13	..
Weetamoe Mills	..	1

◆

Textile Calendar

Southern Textile Association, Dyers', Bleachers' and Finishers' Division, Regular Meeting, Hotel Charlotte, Charlotte, N. C., Jan. 10, 1931.

The Textile Forum, N.A.C.M., master mechanics, Boston (Mass.) Chamber of Commerce, Jan. 13, 1931.

Silk Association of America, Annual Dinner, New York, Jan. 15, 1931.

The Wool Institute, Annual Meeting, New York, latter part of January, 1931.

National Retail Dry Goods Association, 20th Annual Convention, Hotel Pennsylvania, New York, Feb. 2 to 6, 1931.

Boston Wool Trade Association, annual banquet, Copley-Plaza Hotel, Boston, Mass., Feb. 5, 1931.

The Textile Forum, N.A.C.M., warp preparation and weaving, Boston (Mass.) Chamber of Commerce, Feb. 10, 1931.

International Association of Garment Manufacturers, 24th Annual Convention and 18th Annual Textile and Machinery Exposition, Hotel Stevens, Chicago, March 3 to 5, 1931.

The Textile Forum, N.A.C.M., overseers of finishing, Boston (Mass.) Chamber of Commerce, March 10, 1931.

Knitting Arts Exhibition, Commercial Museum, Phiadelphia, April 13 to 17, 1931.

Exposition of Chemical Industries, Grand Central Palace, New York, May 4 to 9, 1931.

American Cotton Manufacturers Association, Thirty-fifth Annual Convention, Hotel Traymore, Atlantic City, N. J., May 21 to 23, 1931.

Textiles on N. Y. Exchanges

The following shows the movements of the leading textile stocks listed on the New York Stock Exchange and Curb for the week ended Dec. 17:

	High	Low	Last Sale	Net Chge
Adams Millis	22½	21¼	22	—1¼
*American Thread, pfd	3½	3	3½	+ ⅛
American Woolen	7½	7⅛	6¼	+ ⅛
American Woolen, pfd	20½	17½	17	—2½
*Assoc. Rayon, pfd	38½	32	32	—6½
Belding-Hemingway	3⅛	3	3⅛	....
*Blumenthal	12	10½	12	....
Botany Mills, A	2	2	2	—1
Cannon Mills	19½	18⅜	18½	—1
Century Ribbon	3½	2½	2½	—1½
Collins & Aikman	14	12	13	+1½
Consolidated Textile	⅝	½	⅝	....
†Courtaulds, Ltd	9⅝	8¼	9⅛	....
Duplan Silk	14¼	14	14	— ¼
Durham Hosiery, pfd	23	23	23	....
*Fabrics Finishing	¼	¼	¼	— ⅛
Gotham Hosiery	5⅜	4¼	4¾	— ⅛
Industrial Rayon	50	46	50	+2¼
Kayser, Julius	16	15	15½	....
Kendall, pfd	3⁰	29½	29½	—5½
Mallinson	2⅛	1⅛	2	— ⅛
Mohawk Carpet	11¼	10	10	—1
Munsingwear	28½	25½	28½	— ⅛
Pacific Mills	17	15	15	—1½
*Pepperell	81¼	80	80	—3½
Phoenix Hosiery	8	7	7	—1
*Powdrell & Alexander	25½	25½	25½	....
Real Silk Hosiery	29½	23½	25	—4
*Tubize Chat B	4½	3½	3½	—1⅛
United Piece Dye Works	23	20⅛	23⅜	+ ⅛
Van Raal e	7⅛	7	7	....

*Listed on Curb.

New Bedford Mill Stocks

(Sanford & Kelley, New Bedford)

	Bid	Asked
Acushnet Mill	3½	5
Beacon Mfg., com	125	..
Beacon Mfg., pfd	84	86
Booth Mfg. Co., com	3	6
Booth Mfg. Co., pfd	26	28
Bristol Mfg. Co	33	36
City Mfg. Co	17½	18½
Dartmouth Mfg. Co., com	27	31
Dartmouth Mfg. Co., pfd	78	..
Gosnold Mill, com	10½	12½
Gosnold Mill, pfd	38	39
Gosnold Mill Notes	..	90
Grinell Mfg. Co	27	29
Hathaway Mfg. Co	32½	..
Holmes Mfg. Co., com	..	3
Holmes Mfg. Co., pfd	..	9
Kilburn Mill	38	40
Nashawena Mills	20	22
N. B. Cotton Mills, pfd	10	12½
Neild Mill	27½	..
Nonquitt Mills	5½	6½
Pierce Mill	98	101
Potomska Mills	32½	..
Quissett Mills, com	50	52½
Soule Mill	50	..
Taber Mill	8½	9½
Wamsutta Mills	8½	9½
Whitman Mills, 6% Notes	..	20

New England Textile Stocks

Quotations at "Public Sale" are based on last sales at Boston Public Auctions and Boston Stock Exchange. Bid and Asked prices are latest quotations of dealers.

	Sale	Bid	Asked
Am. Mfg. Co	52	52	56
Amoskeag	6½	..	..
Arlington	18½	17½	18½
Associated Textile	36½	34	37
Bates	64	64	66
Berkshire, Associates, com	4	4½	6
Berkshire Associates, pfd	25	25	30
Bigelow-Sanford, com	25	..	..
Boott Mills	120½	..	1 8
Edwards	80½	63	65
Esmond, pfd	102	96	99
Farr Alpaca	70½	67	69
Hamilton Woolen	40	30	35
Hill	9	9	12
Indian Orchard	20½	20	25
Ludlow	117½	117	120
Merrimack, com	58	41	44
Nashua, com	10½	12	15
Nashua, pfd	66	56	60
Naumkeag	84	82	85
Newmarket	15	14	18
Otis	43	29	32
Pacific	15	..	..
Pepperell	85	80	83
Plymouth Cordage	66	66	..
York	8½	6	8

Champlain Silk Mills to Liquidate

COMING as an aftermath to reports that the American Silk Spinning Co. had acquired control of the Champlain Silk Mills, aiming at a more concentrated control of spun silk production, T. Belanger, vice-president of the Champlain company announced on Wednesday that the company would complete the manufacture of goods now in process and would then liquidate. Asked regarding the reported acquisition by the American Silk Spinning Co., Mr. Belanger said, "There is no such thing."

The formal statement issued by Champlain follows:

"It was announced on behalf of Champlain Silk Mills that it has determined to discontinue its manufacturing operations as soon as the manufacture of its goods in process can be completed, and thereafter to liquidate its business. It was emphasized that all of the orders which it now has, and all of the orders which it may hereafter take, will be filled."

Champlain Silk Mills is an old-established unit in the textile industry, and has a plant at Whitehall, near Troy, N. Y. F. A. Dale was the founder of the plant, and later control was understood to have passed to Aubrey Myers of New York; last February Champlain effected a merger with the spun silk division of Corticelli Silk Co. The company produces spun silk yarns and noils in skeins and cones. The officers are: Owen D. Frost, president and general manager; T. Belanger, vice-president, Kurt Moebius, treasurer. The New York offices are at 200 Madison Avenue.

It was reported that Mr. Frost would shortly join the American Silk Spinning Co., in an executive capacity; Mr. Frost was out of town this week and could not be reached.

Ribbed Hosiery Knitters Adopt Trade Rules

CHATTANOOGA, TENN.

RULES of trade practice were adopted at a meeting of the manufacturers of children's ribbed hosiery of this section held here Dec. 11. J. Markham Flannery, examiner for the federal trade commission, took part in the deliberations. It was said that 90% of the association's membership was represented at the meeting.

Frank L. Miller, president of the United Hosiery Mills, Chattanooga, was elected president of the Ribbed Hosiery Association and also chairman of the executive committee of the group, according to local report. Other members of the committee were: Rupert Aycock, South Pittsburg; Robert Davis, Fort Payne, Ala.; G. G. Harrolson, Princeton, Ky.; Charles Bacon, Lenoir City, and James Huff, Rockwood.

Other officers named were: Charles Bacon, vice-president; L. O. Wilson, of Knoxville, secretary; Harvey Wilson, president of the Nick-a-Jack Hosiery mills, the Arrowhead mills and the Cromwell Hosiery mills, and vice-president-treasurer of the Richmond Hosiery mills, treasurer. Rupert Aycock, Robert Davis, G. G. Harrolson, Charles Bacon and James Huff were named as the executive committee of the association.

The manufacturers authorized a committee to "make complaints concerning alleged violations" of trade practices adopted, "to co-operate with the federal trade commission and generally to perform such other acts as may be reasonably necessary and proper to put these resolutions into effect and accomplish the purpose of this conference, including authority to accept or disapprove in behalf of the industry any changes suggested by the commission in these rules as adopted."

The resolutions adopted contained provisions as follows:

Condemning defamation of a competitor, inducing breach of contract, enticement of employes, threats of suit for infringement, price discrimination, false branding, misrepresentation, sales below cost, secret rebates and commercial bribery.

Condemning shipment of ribbed hosiery "on consignment with the intent and with the effect of injuring a competitor and where the effect may be to substantially lessen competition or tend to create a monopoly or to unreasonably restrain trade."

Condemning the selling of children's cotton yarn ribbed goods on a basis of flat price instead of a rise-and-fall price.

Approving arbitration of disputes instead of litigation; establishment of minimum standards of fabric construction, to be determined by the industry in co-operation with the United States bureau of standards.

Recommending that the owner of a patent or trade mark deal directly with the alleged original infringer, rather than attempt to intimidate his customers; that accurate and standard methods of cost finding and estimating be adopted on the grounds that accurate knowledge of costs is indispensable to intelligent and fair competition; that the practice of giving samples free be discontinued; that each member publish and distribute his price list and give notification of all advance, decline or other changes in price.

Knitting Arts Sets Run-Resist Standards

Specifications for standards to be followed by underwear knitters licensed under the Rubenstein run-resist patent were announced this week by Knitting Arts Corp., of New York, owners of the patent.

The following are the standards set in accordance with paragraph 3 of the license agreement and which will be sent out to the licensees by William S. Pritchard, president of the Knitting Arts Corp.:

150 denier and heavier—Not lighter than 5 sq.yd. per pound.

100 denier—5½ to 5¾ sq.yd., not lighter than 5.50 sq.yd. per pound.

125 denier—5.40 to 5.50 sq.yd., not lighter than 5.50 sq.yd. per pound.

135 denier—5.30 to 5.35 sq.yd. not lighter than 5.35 sq.yd. per pound.

144 denier—5.20 to 5.25 sq.yd., not lighter than 5.25 sq.yd. per pound.

These standards are for finished fabrics unweighted.

Wool Institute Directors Chosen

Members of the woolen and worsted industry endorsed the group principle of handling the affairs of the Wool Institute at meetings held Dec. 16 and 17 at the Institute offices, New York. More than 100 representing men's wear woolen and worsted, women's wear and manipulated fabric groups were present and again expressed their intent to continue activities of the Wool Institute.

It is felt that dividing the work into branches or groups will make for more sympathetic understanding of the problems confronting the industry and that no time will be lost by discussions that do not pertain to any particular group.

The discussion at both meetings was concerned with methods of organization and it was decided to organize in groups with the chairman of each group becoming a member of the board of directors of the Institute.

Lewis A. Hird was chairman of the worsted men's wear meeting, Dec. 16 and H. M. Ashby acted in same capacity for woolen group meeting that afternoon.

The board of directors elected consists of: F. F. Stafford, Cleveland (O.) Worsted Mills Co.; Leo Wolff, Terhune, Yereance & Wolff; Albert H. Stursberg, Livingston Worsted Co.; Louis Bachmann, Louis Bachmann & Co.; H. M. Ashby, F. C. Huyck & Sons; F. J. Harwood, Appleton Woolen Mills; F. K. Nixon, Worumbo Co.; Phillip Kunhardt, Jr., George E. Kunhardt Corp., Everett L. Kent, Kent Mfg. Co.; E. L. Parker, Clinton Woolen Mfg. Co.; Wm. H. Folwell, Folwell Bros., & Co., Inc.; Waldo Grose, Botany Consolidated Mills; F. W. Tipper, Deering, Milliken & Co., Inc.; A. C. McGowan, T. H. McGowan & Son.

It was decided that this board shall meet in the near future and elect other directors and also to elect officers. It is probable that this will be done within the next two weeks. Although no definite number was decided upon for the board indications are that it will number 30.

Lancashire Operatives Meet Dec. 20 to Consider Wages

MANCHESTER, ENGLAND — No developments are noted in cotton weaving wage dispute. Notices expire Jan. 5 but important operatives' meeting on Dec. 20 may lead to a reopening of negotiations.

Japanese Sanction Silk Campaign Here

With the official approval by the Raw Silk Association of Japan this week of the plan for a five-year silk popularization campaign in the United States, recommendations were made by Japanese leaders in the New York market that the conduct of the campaign be placed in the hands of the Silk Association of America, Inc. It is understood that the Yokohama organization has taken this proposal under advisement. The campaign received formal sanction at a general meeting of the Raw Silk Association of Japan at a meeting held in Yokohama Tokio. It was decided that the Japanese Government, the filatures and the exporters each contribute equal sums, totalling about $600,000 annually. There were intimations from the Japanese that additional financial support of the drive would be given by American silk interests.

The campaign will start sometime after July, 1931, and will probably be conducted along strictly American lines; the Japanese have data on various other silk drives conducted here during recent years and it is understood that these will be used as a frame-work in planning the new campaign. The details of the drive are not available, pending decision of the Yokohama body as to the suggestion that it be conducted by the Silk Association. While the drive will be non-competitive in character, and will emphasize the advantages of silk, without referring to other textile fibers, it is understood to have been suggested by the growing call for rayon and cotton textiles.

Selling Agents May Join Wool Institute

As result of a meeting of woolen and worsted goods selling agents at offices of Wool Institute, New York, Dec. 12, it is probable that selling agents will become a part of the Institute which heretofore has been composed only of weavers and spinners. Closer cooperation between manufacturers and selling agents is regarded as desirable and this will be brought about by the formation of a division of the Institute for the selling agents. Louis Hird, Samuel Hird & Sons, New York, acted as chairman and another meeting of same groups will be held shortly to consider details for selling agents becoming members.

New Accounts for Bliss, Fabyan & Co., Inc.

Export sales of the Cosmos Imperial Mills, Ltd., Hamilton, Ontario, Canada, will be taken over by Bliss, Fabyan & Co., Inc., New York, as of Jan. 1, 1931. The Cosmos firm manufactures duck, dryer felts, filter twills and twine. It is also announced that New York office of J. Spencer Turner Co., Ltd., covering sales made in British possessions will be located with Bliss, Fabyan & Co., Inc., after the first of the year. This account will be under direction of Francis R. Masters, formerly export manager of Lawrence & Co., who will become associated with Bliss, Fabyan & Co., Inc.

Accurate Planning of Worsted Open Drawing

(Continued from page 37)

it is possible to ascertain the output of each machine. A daily or weekly detail sheet can be compiled as required. Not only are these particulars useful in comparing the estimated production with the actual, but they can also be used for comparative purposes. In assembling particulars of production, time must be allowed for doffing, cleaning, and other stoppages.

Spinners who desire a 100% production in their drawing should plan the machines for balanced running. Carefully record standing time, and if necessary establish a bonus scheme. An operative who saves one minute each time she doffs a reducer will increase the weekly production by 5%.

Whitin Acquires Fales & Jenks and Woonsocket Cos.

(Continued from page 31)

their present standard. Complete arrangements will be made for the transfer of patterns and tools, so that the repair service for existing machines heretofore manufactured by Woonsocket and Fales & Jenks will be adequately carried on.

"It is the earnest hope of those in charge," stated the Whitin Machine Works on announcing the event, "that the result of this acquisition will enable Whitin to give to its customers and also the customers of Fales & Jenks and Woonsocket a better service than it has been able to give under past conditions, as it will be better able to maintain the highly technical service which is necessary to serve properly the requirements of the mills."

The Woonsocket equipment will be moved to Whitinsville; no announcement has been made as to where the Fales & Jenks equipment will be maintained. All will be conducted under the name Whitin Machine Works, with a Fales & Jenks Branch mentioned.

Dyers Move to Larger Quarters

The Reliable Silk Dyeing Co., the Reliable Straw Dyeing Co. and Alexander Blechman, dyers of rayon and cotton yarn, straw and felt hat bodies, and braids have moved to larger quarters at 23 East 4th Street, New York City.

British Dye Act Gets Brief Lease on Life

LONDON, ENGLAND—House of Lords has reversed decision of Commons to allow dyestuffs act to lapse. There is possibility that a compromise will be arranged allowing the act to remain for further six months.

S. A. Robinson Heads Gaston County Association

S. A. Robinson, secretary and assistant treasurer of Ranlo Mfg. Co., Gastonia, N. C., was elected president of the Gaston County (N. C.) Textile Manufacturers Association, at the regular December meeting of that organization last week. He succeeds Arthur K. Winget, secretary and treasurer of the Armstrong-Winget group of mills.

Other officers elected were: Fred L. Smyre, of Gastonia, first vice-president; D. P. Stowe, Belmont, N. C., second vice-president; and Fred M. Allen, secretary and treasurer (re-elected). Directors elected for a one-year term, were as follows: R. F. Craig, Stanley, N. C.; C. M. Robinson, Lowell, N. C.; J. W. Stowe, Belmont, N. C.; C. D. Welch, Cramerton, N. C., and W. H. Suttenfield, Statesville, N. C. Directors for two-year terms were elected, as follows: Frank W. Van Ness, Tuxedo, N. C.; Charles A. Cannon, Kannapolis, N. C.; J. A. Groves, Albemarle, N. C.; R. B. Suggs, of Belmont; and R. Grady Rankin, of Gastonia; for three-year terms: George Fish, of Lowell; Fred H. Robinson, Dallas, N. C.; George W. Stowe, of Belmont; and E. E. Groves, of Gastonia.

Vestal Bill Gains Ground at Senate Hearing

Much ground was gained for the Vestal design copyright bill at Tuesday's hearing before the Senate Committee on Patents. Senators Waterman, of Colorado, the chairman, Goldsborough, of Maryland, and Broussard, of Louisana, were favorably impressed by the testimony presented in support of the measure under the direction of the Silk Association of America. The three members present revealed that they are in hearty accord with the purpose of the bill to suppress piracy of designs and Senator Waterman remarked that the manufacturers and designers have conceded so much to meet objections made to the bill by retailers that it may not be sufficient to protect their own interest. Horace B. Cheney, of Cheney Brothers, explained that its effectiveness is retained as the retailer holding enfringing goods would be required to testify against the person from whom he purchased them.

Opponents of the measure will be given an opportunity to appear Jan. 5.

I.A.G.M. Convention and Exposition to be Held in March

Following a meeting of the joint committee representing exhibitor-members and members of the International Association of Garment Manufacturers, it was definitely announced that the twenty-fourth annual convention and the eighteenth annual textile and machinery exposition of the I.A.G.M. would be held at the Hotel Stevens in Chicago, Illinois, on March 3, 4, and 5, 1931.

Business News

Progress Toward Gaston Co. Combed Yarn Merger Reported

The consolidation of a large number of combed yarn mills in the Gaston County area is contemplated, according to a preliminary announcement from Gastonia, N. C., early this week. The proposed merger was said to have developed to a point where definite information would probably be released within a few days.

Nothing could be learned officially concerning the individual units that would be included in the merger, but it was understood that well over 200,000 combed yarn spindles were involved in the consolidation. This would create an organization of such size that mercerizing and other finishing plants could eventually be included in the plans.

Several bank closings in Gaston County Monday and Tuesday served to impede merger negotiations and further progress in this direction is somewhat contingent upon the financial situation in that section when present uncertainties have cleared away. The First National Bank of Gastonia, the largest institution to close its doors, reported that heavy withdrawal of deposits since Nov. 20 had resulted in the decision to place affairs of the bank in the hands of the comptroller of the currency. J. Lee Robinson, of Gastonia, president of several Gaston County mills, was president of the First National Bank.

Three smaller institutions in Gaston County, the Gaston Loan & Trust Co., of Gastonia; the Bank of Dallas, and the Peoples Bank of West Gastonia, also closed their doors. It was stated, however, that bank officials believe the First National Bank which had paid out $800,000 to depositors since Nov. 20 is solvent and that its depositors will probably be paid in full.

In the meantime, stockholders of the various yarn mills included in merger plans are awaiting further announcement of developments in the consolidation and a statement of the terms under which the merger may be accomplished. An exchange of stock of the many small individual mills for shares in the large consolidated corporation, will widen the market for such securities.

Boston Wool Receipts

Receipts of domestic and foreign wools at Boston, also imports at Philadelphia and New York for the week ended Dec. 13, based upon data compiled by the Market News Service of the Bureau of Agricultural Economics, Department of Agriculture, follow:

	Week Ended Dec. 13	Total to Date 1930	Total to Date 1929
Domestic.....	140,000	343,245,000	290,002,000
Foreign.....	612,000	59,181,00	93,022,000
Total.....	752,000	402,426,000	383,024,000
IMPORTS AT PRINCIPAL PORTS			
Boston.....	612,000	59,181,000	93,022,000
Philadelphia..	355,000	42,290,000	86,844,000
New York....	214,000	43,407,000	71,794,000
Total.....	1,181,000	144,878,000	251,660,000

Merrick Sees Return to Normalcy

"A normal return to sound business can be expected," says F. A. Merrick, president, Westinghouse Electric & Mfg. Co., in a statement issued this week. Mr. Merrick reviews the current situation in detail, and analyzes the forces making for normalcy. Then he summarizes as follows:

"Beyond all this is the basic fact that goods in the hands of the public are daily being consumed, that the shelves of the dealers are being cleaned up and the stocks of distributors lessened—thus the fundamentals of a normal return to sound business in all lines are working themselves out as must ever be the case. This is too large and too fundamentally prosperous a country to stand still for any long period."

Textile Electrical Control Firm Formed

New Era Electro Devices, Inc., Chattanooga, Tenn., has been organized with capital stock of $15,000, to manufacture and distribute electrical controls for textile machinery. P. F. O'Neill, formerly superintendent of Standard-Coosa-Thatcher Co., is secretary and treasurer of the new company. C. W. Whitehead, Louis Phillips and M. J. Stevens developed the automatic electro control system and were instrumental in organizing the new corporation.

General Electric Sponsors Job Permanency Plan

A stabilization of employment plan whereby employees of the incandescent lamp department of the General Electric Co. of not less than two years continuous service, will be guaranteed 50 weeks work for the year 1931, is announced by President Gerard Swope. The plan will become effective Jan. 1, 1931, upon acceptance by 60% of the eligible employes.

L. B. Wilcox Secretary of Hemphill Co.

L. B. Wilcox, who was recently elected secretary of the Hemphill Co., nas gone to the company's general office at Pawtucket, R. I., where he will make his headquarters. Mr. Wilcox is also a director of the company and continues as sales manager. He will visit the New York office at frequent intervals.

Synthane Executive Completes Coast Trip

J. B. Rittenhouse, vice-president and Chicago representative of Synthane Corp., Oaks, Pa., manufacturers of Synthane Uniform Laminated Bakelite, has just completed a trip to the company's western representatives in San Francisco and Los Angeles.

Lincoln Electric Changes

Changes in personnel of the Pacific Coast offices of The Lincoln Electric Co., Cleveland, Ohio., manufacturers of "Stable-Arc" welders and "Linc-Weld" motors include the appointment of S. H. Taylor, Jr., to succeed W. S. Stewart in charge of the coast with headquarters at 812 Mateo St., Los Angeles. Mr. Stewart was recently appointed district manager of the Cleveland territory. Appointment of L. P. Henderson as manager of the San Francisco office is announced, as well as the appointment of E. J. Pfister, formerly of the Philadelphia and Allentown offices, to be manager of the Kansas City district, with offices at 405 R. A. Long Bldg., 10th and Grant Streets. The firm's Philadelphia office has been moved to the Commerce Building, to provide additional space for the sales and service of arc welders, motors and welding supplies and to provide space for making tests on arc welded designs.

Lewellen Announces New York Distributor

The Lewellen Mfg. Co., Columbus, Ind., announces that Petty & Wherry, Inc., New York City, has been made sole distributor for Lewellen variable-speed transmission in the New York metropolitan section.

Fuller Lehigh Moves Plant

It is announced that the Fuller Lehigh Co., a subsidiary of The Babcock & Wilcox Co., will shortly consolidate its manufacturing operations now at Fullerton, Pa., with those of The Babcock & Wilcox Co. at its Barberton, O., plant. The management, engineering and sales departments will be located at 85 Liberty St., New York. The Fuller Lehigh Co. will continue to maintain sales offices in all principal cities.

Hartmann Continues Textile Machinery Manufacture Without Interruption

In view of rumors which have been in circulation regarding the status of the Hartmann Textile Machine Works of Chemnitz, Germany, an official statement has been issued to the effect that the operation of all textile machinery departments are being continued without interruption.

The statement explains that post-war trends made it advisable for the directors of the Saechsische Maschinenfabrik vorm. Rich. Hartmann A. G. to discontinue certain manufacturing departments which had experienced sharp declines due to displacement of commercial channels and markets. These branches included the manufacture of locomotives, steam engines, boilers, refrigeration machines, certain machine tools, etc. On the other hand all textile machinery units had shown an upward development. It was decided to liquidate the holdings of the old company and to centralize all textile machinery departments, incorporating them under the new title of Saechsische Textilmaschinenfabrik vorm. Rich. Hartmann A. G. The corporate papers were filed in July, 1930.

The Hartmann Textile Machine Works have taken over the personnel of the old company, besides the patents, drawings and patterns, and the manufacturing facilities—centralizing them in one large plant rather than having them split up among four widely separated units as in the past. The statement adds that the company is continuing not only on a sound financial basis but under a far more efficient system than heretofore; and that, in spite of general depression in textiles for some time past, all departments are on a full-time basis with a complete staff of workers.

The Hartmann products include wool cards, wool spinning mules, and preparatory and auxiliary equipment; looms, worsted machinery, cotton machinery, including long-draft spinning system, rayon machinery, twisters, etc.

The New York sales offices of The Hartmann Textile Machine Works are located at 475 Fifth Ave., New York. H. H. Leonard is appointed sole agent for the United States and Canada.

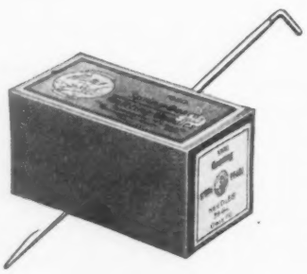
ORDERS EXPAND COSTS SHRINK

Knit Goods Company Saves with Torringtons

Philadelphia, Pa.—"Watch your needles if you want your orders to go up and your costs to go down" is the advice of the head of a knitting house here after a recent check-up on his production.

"Stopping machines for needle replacements costs money. Needles *must* be able to stand punishment and keep going.

"For instance, think of the steady open, shut, open, shut of the beard. Only mighty fine tempered steel can stand that constant flexing. I stick to Torringtons because then I *know* I've got a needle tempered to last."



The red box with the green label.

Packed 1000 to the box. Each box contains 10 packets of 100 needles wrapped in glazed paper.

TORRINGTON

Full Fashioned

NEEDLES

The Torrington Company

Torrington, Conn., U.S.A.

BRANCHES:

THE TORRINGTON CO. CHERRY & JUNIPER STS. PHILADELPHIA

THE TORRINGTON CO., INC. 140-144 W. 22ND ST. NEW YORK

LOS FABRICANTES UNIDOS 964 CALLE BELGRANO BUENOS AIRES

FACTORIES AT:

TORRINGTON, CONN.

COVENTRY, ENGLAND

UPPER BEDFORD, QUEBEC

AACHEN, GERMANY

Incomparable

THE NEW PARAMOUNT SILK FORM

Indispensable for Manufacturers who demand Super Quality Finishing

PARAMOUNT Engineers have combined in one form every desirable feature necessary to produce the Perfect Silk Hosiery Drying and Finishing Medium.

The Special Processed Surface, for example, produces a frictional resistance that results in an average of one inch greater length in the finished stockings.

Constructed, at certain points, thinner than an ordinary wooden board this form tapers to perfect crease-producing edges and distends thru the leg portion for faultless finishing of Silk and Picot Tops.

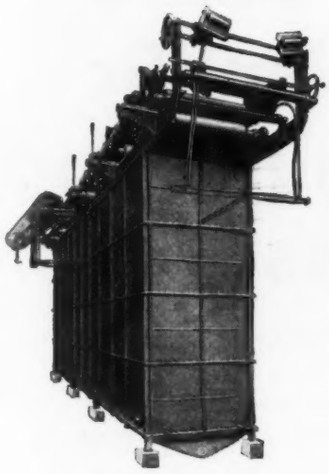
The New Paramount Form, built of a metal tougher and more durable than steel—flawless in surface—immune to corrosion or rust and without plating to crack, chip or wear off, provides the ultimate in protection against the costly hazard of "Pulled Threads".

Heated by the Paramount Low Temperature Water dry System the Paramount Silk Form can be operated at any selected temperature between 160 and 200 degrees which is the perfect heat range for silks, *to avoid baking.*

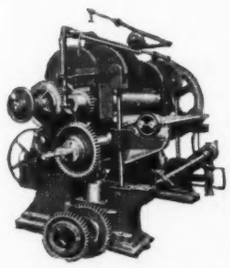
Forms are mounted to Swivel permitting inspection of both sides of the stockings. Alignment and straightening of Picot and Silk tops is facilitated and spraying of Ingrains can be accomplished with maximum efficiency.

PARAMOUNT
TEXTILE MACHINERY CO.
337 West Madison Street, Chicago, Ill.

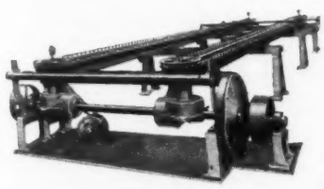
Your competitor is probably using some of these modern Butterworth Machines



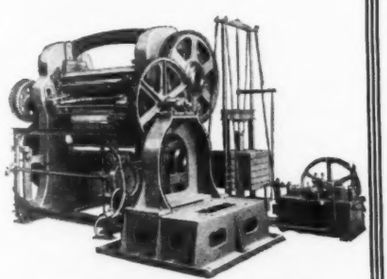
Butterworth Continuous Kier



Butterworth Schreiner or Charmeuse Calender



Butterworth Anti-Friction Tenter



Butterworth 3-roll hydraulic friction calender.

THE EASIEST, BEST AND QUICKEST WAY TO DETERMINE HOW YOUR PRESENT FINISHING COSTS CAN MEET THOSE OF YOUR COMPETITORS IS TO LET US MAKE A PLANT SURVEY NOW

MANY concerns finishing their own goods, or the product of other mills, know that their costs are much higher than their competitors', but they cannot discover why.

The answer might be the age or condition of the machinery; it could be the arrangement of machines; or that your competitors have installed all modern machinery.

We shall be glad to send a member of our engineering force to talk over the possibilities of making a survey of your plant. Confidential correspondence relative to plans and terms of payment for any Butterworth machines which the survey might show should be installed can be addressed to Mr. A. W. Butterworth, President.

H. W. BUTTERWORTH & SONS COMPANY

Established 1820

PHILADELPHIA, PA.

PLANTS *at* PHILADELPHIA *and* BETHAYRES, PA.

New England Office:	*Southern Office:*	*In Canada:*
TURKS HEAD BUILDING	JOHNSTON BUILDING	W. J. WESTAWAY CO.
Providence, R. I.	Charlotte, N. C.	Hamilton, Ontario

BUTTERWORTH *Finishing* MACHINERY

A COMPLETE LINE OF FINISHING MACHINERY FOR THE TEXTILE INDUSTRY . . . . . .

The textile program is based upon scientific and engineering principles

PRESTON S. MILLAR

The kind of cooperative campaign laid down for the textile industry holds promise of future progress. To me its encouragement of technical research and plant modernization naturally makes particular appeal.

No industry in our time can advance without technical research. Without it the development of plant and production equipment would be a slow procedure. To be applied most economically for the benefit of the whole industry research should be cooperative, with cost shared equitably by all.

Preston S. Millar

● Mr. Millar as President of the Electrical Testing Laboratories, has a wealth of experience to qualify his views on the subject of technical research and technical equipment. It is industrial leaders of his type who are watching and applauding as the industry renews its old pioneering spirit and marches on to new accomplishments. « «

TEXTILE WORLD publishes this advertisement in the interests of the textile industry and those who equip it.

All industry is watching textiles

WATCH THIS PAGE AND YOU'LL SEE

GOLD STRIPE

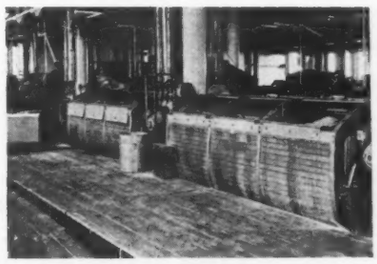
—another famous brand of hosiery— dyed on Smith-Drum Machines

American women are fussy—they insist that their stockings be of the exact shade or tint desired. Knowing this, such concerns as Gotham Gold Stripe, Onyx, Phoenix, Cadet, Real Silk and scores of others take no chances with their dyeing processes. Among other things, they use the finest dyeing machines that can be bought.

It is very significant that practically all of these outstanding companies use Smith-Drum Machines *exclusively*. They are constantly investigating and comparing. They miss no opportunities.

They continue to purchase Smith-Drum Machines year after year for the simple reason that they can find none that are better.

Consider this overwhelming evidence the next time you are in the market for new machines. A Smith-Drum representative will gladly call on you to tell you more about these famous dyeing machines.



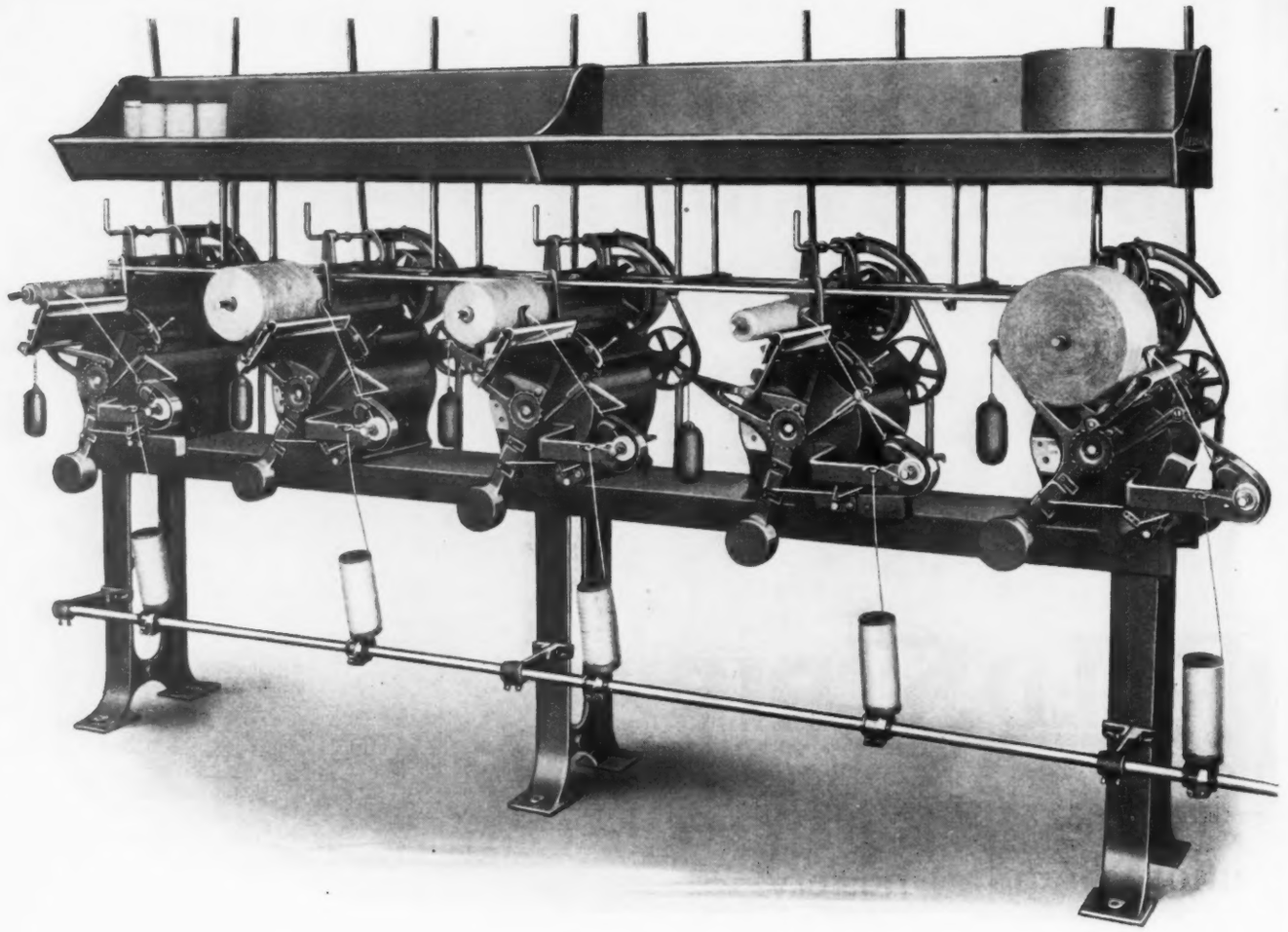
The combination of Smith-Drum machines — admittedly the finest that money can buy plus Smith-Drum Service has won for this company its present position as "The world's largest builders of hosiery dyeing machines."

Here are a few of the reasons why there are more Smith-Drum Machines in use than all other makes combined:

Less re-dyes ..... Fewer pulled threads
Less floor space ..... Less trouble
Greater production ..... Longer life
Lower Maintenance

SMITH-DRUM

SMITH-DRUM & CO.
Philadelphia, Pa.
SINCE 1888—BUILDERS OF THE BEST



#45 MACHINE . .

THIS MACHINE is equipped for winding packages 10″ in length, either in cone or tube form. It is strongly built and capable of running at as high a speed as is practical for the delivery of the material which covers a range from carpet warp to heavy twine. ¶ The packages contain from 15 to 20 lbs; depending upon the character of the material. ¶ As the supply is wound by the "Universal" method it occupies the smallest space possible, effecting a substantial saving over twine wound on balls or reels, both for delivery and for storage purposes.

LEESONA

UNIVERSAL WINDING COMPANY

BOSTON

See also CONSOLIDATED TEXTILE CATALOG

317

UNIVERSAL WINDERS

NO QUESTION ABOUT IT

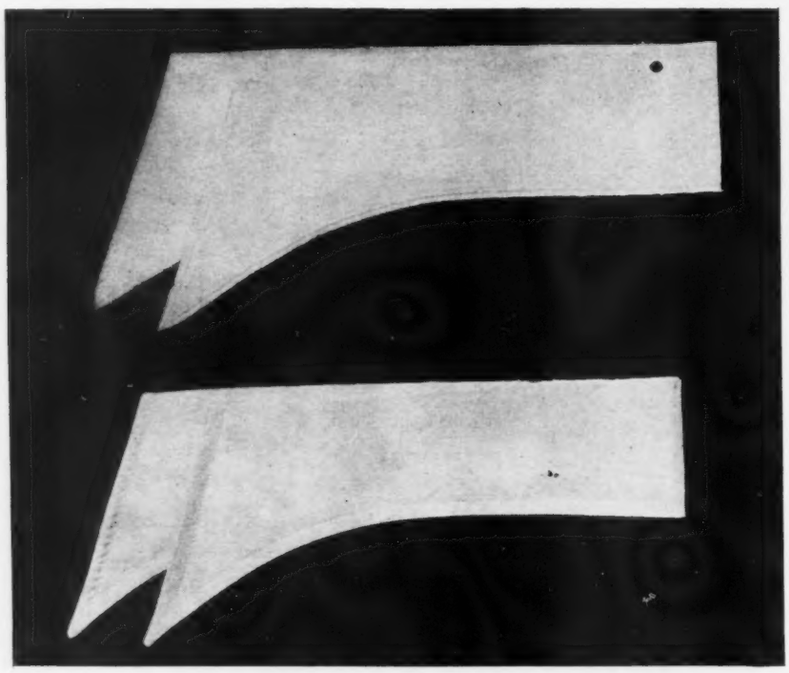
There is no doubt that the corner has been turned towards a recovery in all lines of textiles. •An increased number of loom orders practically proves it to us, as witness the large order just placed for our new High Speed Worsted Looms by Botany Worsted Mills. • Additional proof is the increased interest in our new developments by concerns which are getting ready to buy. • We are ready with new looms and accessories in all lines with full proofs as to how we can assist you in obtaining production and efficiency well beyond the pre-depression days.

CROMPTON & KNOWLES LOOM WORKS

LOOMS FOR COTTONS, SILKS, RAYONS, WOOLENS, CARPETS AND RUGS, BLANKETS, JACQUARD FABRICS, ASBESTOS, LINENS

Allentown Paterson Philadelphia WORCESTER - PROVIDENCE S. B. Alexander, So. Mgr., Charlotte

The right machine for running collar tops



Above: Stitched and trimmed automatically with a uniform margin in the first operation. Below: After turning and seaming in the second operation.

Style 15800 EZ is the machine that Union Special engineers have just perfected for running collar tops. Now used successfully by some of the largest shirt manufacturers, this machine affords high speed production with automatic trimming which insures an even and very accurate margin in the first seaming operation. A guide is used to prevent the operator from crowding the work and cutting away the shape of the collar.

The differential feed prevents the fabric from stretching when sewing to and from the points eliminating all distortion. By an overlapping of stitching the seam is twice double locked at the points. With trimmer disengaged the machine is also used for the second seaming operation after the collar is turned.

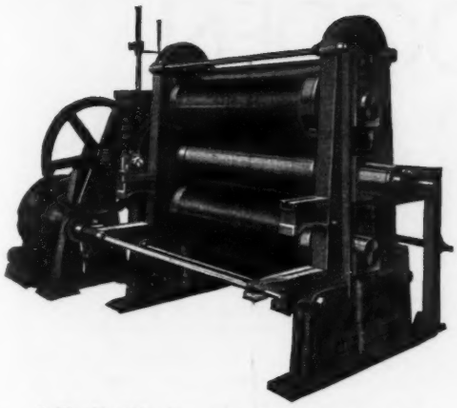
Write for complete information on production. » »

UNION SPECIAL MACHINE CO.
400 N. Franklin St. · *Chicago, Ill.*

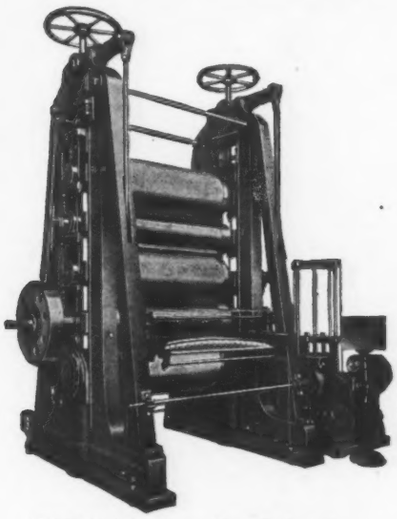
Makers of Special Sewing Machines for all Manufacturing Purposes

TW12-27Gray

CALENDERS
ALL HYDRAULIC



3-Roll Hydraulic Silk Calender



5-Roll Hydraulic Calender
with "Textile" Roller Bearings

WHATEVER type of Calender or other finishing machine you require TEXTILE will build it for you.

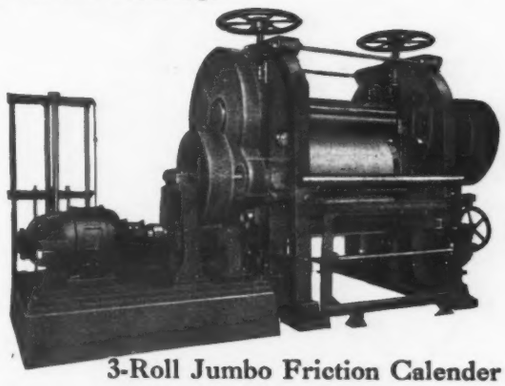
For more than fifty years TEXTILE has specialized in Calenders and Calender Roll manufacture.

Some of their latest designed machines for finishing fabrics of Cotton, Silk, Rayon, etc., are shown on this page.

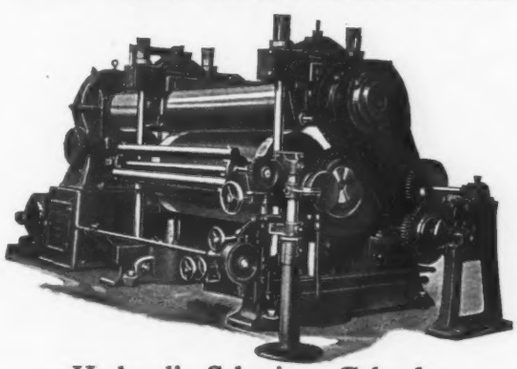
Every TEXTILE Calender is manufactured to best meet the individual requirements and conditions of the plant where it is to be installed. TEXTILE press rolls are used exclusively in all TEXTILE Calenders. The kinds of rolls used, whether (Cotton, Paper, Husk, or Combination) and their arrangement in the frames depends on the type of Calender, and finish desired.

TEXTILE have illustration sheets showing their complete line of Calenders, if you have not received your copies, we suggest that you write today and they will be promptly sent.

See also CONSOLIDATED TEXTILE CATALOG



3-Roll Jumbo Friction Calender



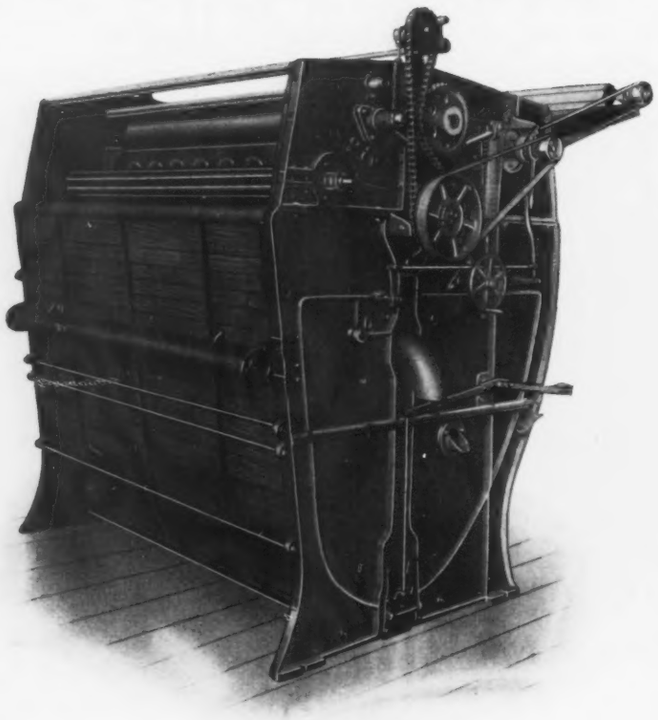
Hydraulic Schreiner Calender

Manufacturers of Machinery for
Bleaching, Mercerizing, Dyeing, Drying, Printing and Finishing Textile Fabrics and Warp Yarns

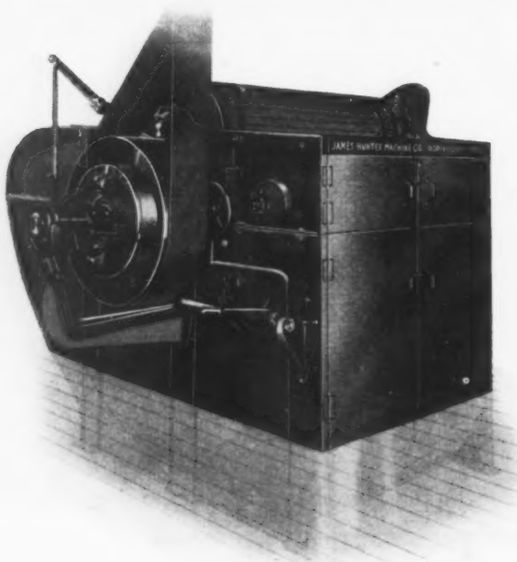
THE TEXTILE-FINISHING MACHINERY CO.

Harris and Simms Aves., Providence, R. I.
New York Office, 50 Church St.
Southern Representative, H. G. Mayer, Charlotte, N. C.

FAREWELL TO WOODEN FULLING MILLS AND WASHERS!



This is the Metal-Clad *Hunter* Model H Cloth Washer. Note its Compact Sturdiness and Greatly Improved Design.



This is the Model 30—the larger *Hunter* Iron-Clad Fulling Mill. It will increase production and improve quality on any fabric.

How Hunter Metal-Clad High Production Fulling Mills and Cloth Washers are Bringing New Advantages To Wet Finishing Operations.

The illustrations on this page show you the *Hunter* Metal-Clad line of high production fulling mills and cloth washers.

Capable of far greater production per machine, eliminating ordinary repairs, cutting down number of units formerly required, these new metal-clad machines mark the beginning of the end of familiar repair-burdened, wooden mills and washers.

16 Plants Increase Fulling

Already 16 outstanding woolen mills* operating *Hunter* High-Speed Metal-Clad Fulling Mills have increased productions 200% to 500% over standard machines. One mill has increased outputs 700% with a single *Hunter* Model 30 . . . . Thus, if you full at all, regardless of the type of cloth or its inherent diffiuculties, the *Hunter* can increase your production, and nearly always improve quality.

Now a Metal-Clad Washer

Hunter's Model H Metal-Clad Cloth Washer (built in any desired size) is a fit companion for the High Production Fulling Mills. All metal save for the lining. Silent chain driven, rubber roll equipped, the Model H offers you

1. faster and cleaner washing
2. reduction in number of washers formerly required for a given job
3. practical elimination of ordinary repairs
4. makes possible quick and easy duplication of any desired result.

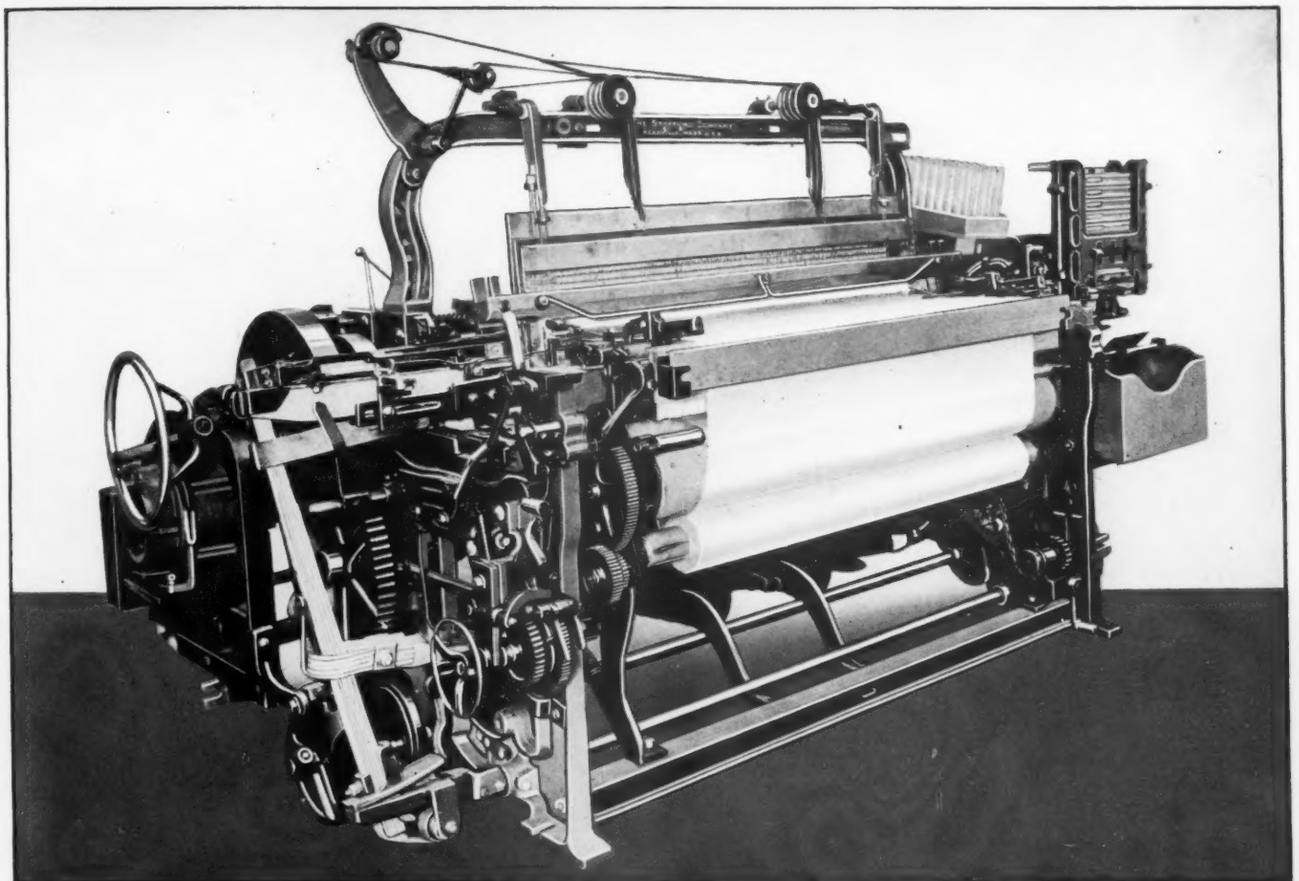
Learn What Can Be Done Before You Spend a Cent

You can learn exactly what can be accomplished by *Hunter* Metal-Clad Mills and Washers before you obligate yourself to spend a penny. And on your own cloth. Tell us what your present production is, your present equipment, and the cloth you are now making and we will tell you what you can expect from this new equipment. Full details on request.

JAMES HUNTER MACHINE COMPANY

Founded 1847

North Adams, Mass.



LOOM VALUE

THE first and second of the great factors that determine loom value, i.e., its *design* and the *quality* of *materials* and *workmanship*, are easily apparent in the Stafford Shuttle-Changing loom. ¶ There is no question but that the Stafford delayed-action principle of shuttle changing is far and away the best for fine cotton goods and rayons. There can be no loose picks or looped picks. As for productions and costs, we have published figures from mill after mill where Stafford looms are bettering every known standard of the past. ¶ As for quality of materials and workmanship, the following tale of what an owner of Stafford looms accomplished with new looms is as unusual as the looms themselves: ¶ In one of the best of fine goods mills several hundred brand-new Stafford Shuttle Changing looms had been installed. They had been rocked for but one day when the Superintendent found that some new warps were beginning to come through for a rush job. There were 2 sets of them to make approximately 900 pieces of high sley fabric of very difficult weave. Faced with the necessity of taking warps out of old looms to get the job out, against his better judgment and experience he tried one warp in one of the new looms. To his surprise it started up and "walked away" with the job without the slightest trouble. Whereupon he put the whole job on the new looms and got the order through as easily as if the looms had been thoroughly broken in. When you consider that the quality standards of this mill are of the highest known, the performance is most illuminating. ¶ As for the third factor, the maker's interest in his looms after they are sold, consider the new items reported on the other side of this page. Read about some of the cost-saving and profit-making practices of Stafford loom owners, instituted at the suggestion of, and with the help of, Stafford service men.

Loom Value is Determined

FIRST, by design.

SECOND, by quality of materials and workmanship.

THIRD, by the maker's interest in his product after it is sold.

TURN . . . THE PAGE . . . for the Latest News on STAFFORD Looms

Amazing Versatility of STAFFORD Shuttle Changers Permits Manufacturers to "Follow the Styles at a Profit" . . . .

4% Seconds on Difficult Rayons Obtained Soon After Starting Up New STAFFORD Shuttle Changers.

A LARGE Northern mill operating many Stafford Shuttle-Changing Looms reports that it has reduced its seconds to a consistent 4% on the most exacting Celanese fabrics. It operates with 14 looms per weaver and is happy to have licked the quality problem so handily. Stafford service men have worked with the mill in achieving this end and have made many helpful suggestions about some of the finer points of handling these looms.

□ □ □ □ □

STAFFORD Shuttle Changers Handle Filling Packages of All Types, Sizes and Weights

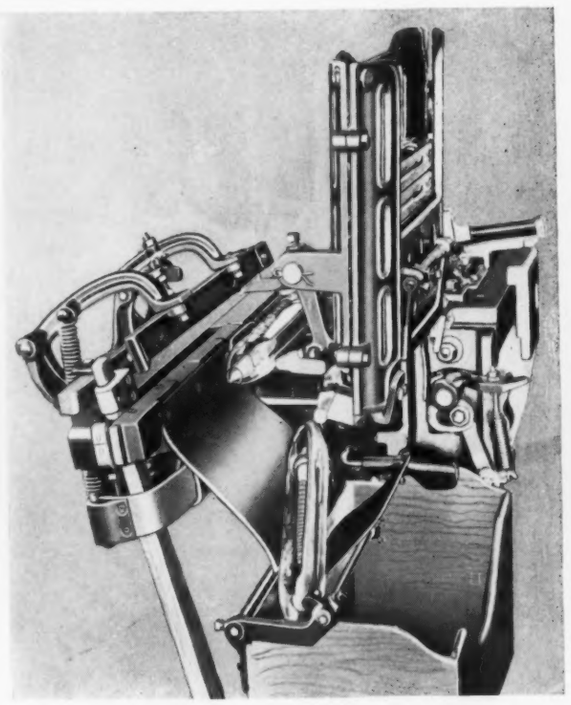
Here are illustrated some of the filling packages that the Stafford Shuttle Changer can handle with no trouble at all. You can

use any type of bobbin or cop that the shuttle will take. If you want quality you can get it. If you see a way to save money, you can save it. You can "follow the styles" on an economical basis

□ □ □

Mill Weaves Fabrics on STAFFORD Shuttle Changers from 10 to 1.85 Yards per Lb.

A Southern mill equipped with Stafford Shuttle Changers is making government goods which run 1.85 yards to the lb. Our looms are handling it very successfully. Other Stafford looms in this mill are weaving fabrics which run up to 10 yards per lb. We were happy to show this installation to a mill executive who had an idea that Stafford looms were suited for "very, very fine fabrics." To you we point out the profit possibilities of a loom that has the amazing versatility of the Stafford Shuttle Changer. You can keep these looms busy for they can handle any order you take, within their range.



Rayon Manufacturer Puts Idle Looms to Work on Silk

UPON learning from a mill superintendent that he was experimenting on weaving silk on some old Stafford Shuttle-Changing Looms, a Stafford representative was glad to inform him that all Stafford Shuttle Changers are so built that the single box automatic motion can be replaced with a 2 x 1 lay and box motion for weaving crepes.

Did you know that this could be done? It can be done easily, for the frame is already fitted to take this motion. Again we point out the possibilities for profit in a Stafford designed loom. It's versatile,—the product of master loom builders.

Stafford engineers are always available for our customers' service.
It's a worth-while service behind a worth-while loom.

THE STAFFORD COMPANY

MANUFACTURERS OF

Weaving Machinery

READVILLE, MASSACHUSETTS

Paterson Office: 179 Ellison St., Paterson, N. J.

Southern Agent: Fred H. White, Charlotte, N. C.

PRINTED IN U. S. A.

A Product with a Background

No CALENDER *can be better than the* ROLLS *in it*

The high finishing qualities of Perkins Calender Rolls are the natural result of the longest and broadest experience in this highly specialized manufacture.

The Perkins roll shop is the largest in the world.

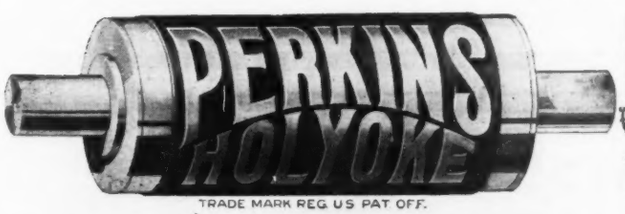
The Perkins organization is always prepared to build your rolls to meet exactly your production requirements.

Refills and remakes include the rolls of any manufacture, domestic or foreign, for any application in the textile industry.

B. F. Perkins & Son, Inc., Holyoke, Mass.

ENGINEERS AND MANUFACTURERS

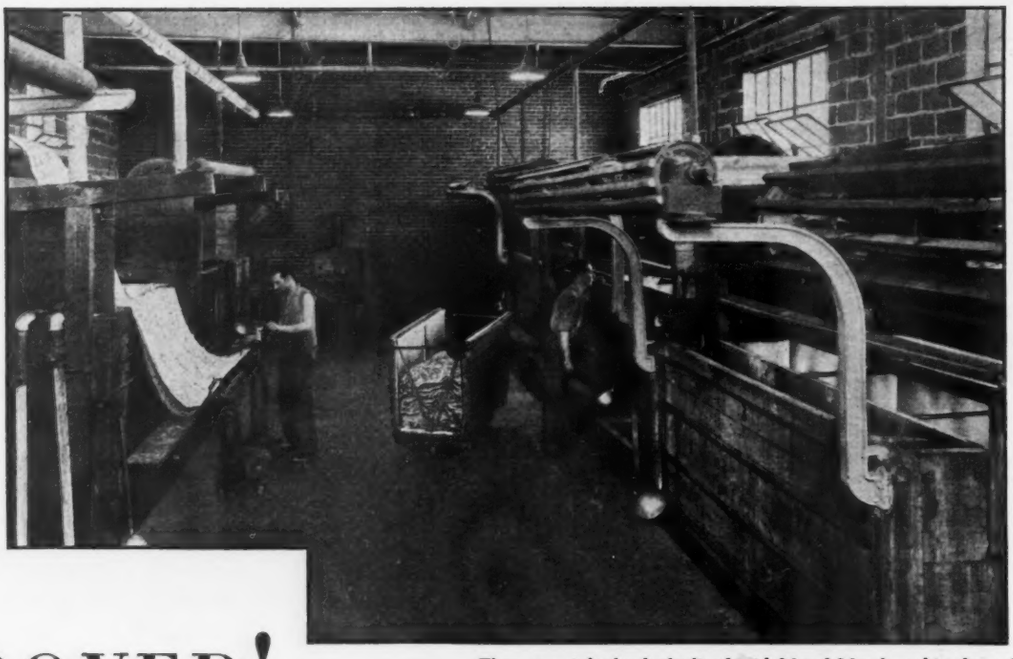
Southern Representative: Fred H. White, Independence Bldg., Charlotte, N. C.



TRADE MARK REG. U.S. PAT. OFF.

Rolls—Cotton, Paper, Husk, Combination, Cotton and Wool

Calenders	Dyeing Machines	Singers
Drying Machines	Padders	Squeezers
Starch	Ranges	Tenters
Water and Tommy	Scutchers	Washers
Dodd Mangles		Winders



There are eight dye becks lined with Monel Metal at this plant of the Hillside Dyeing & Finishing Co., Inc., North Bergen, N. J. Mfd. by WERNER & CO., Passaic, N. J. Monel Metal lined trucks and the Monel Metal dippers were made by METAL PRODUCTS CORP., Weehawken, N. J.

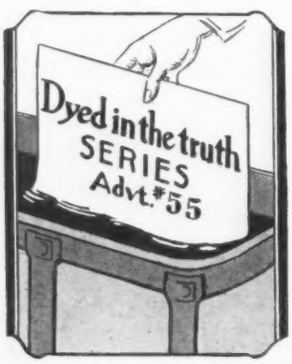
PROVED!

Monel Metal

prevents "*pile pull*"

in dyeing

VELOURS...



The fascinating story of Monel Metal—its properties and uses—is told in a 2-reel motion picture film, now available for free distribution.

PHONE UNION 5788

S. JANKE, PRES.
J. HASSER, TREAS.

Hillside Dyeing & Finishing Co., Inc.

Dyers and Finishers of Pile Fabrics

ROWLAND PLACE & DELL AVE.

North Bergen, N. J., July 12th 1930

Whitehead Metal Products Company
304 Hudson Street,
New York City

Gentlemen:-

Recently we had lined two more dye kettles with Monel Metal and we have now all of our dye kettles Monel Metal lined and find it a great benefit, especially we note with satisfaction in dyeing plain velours, that there is no pile pull due to friction of walls, such as was the case in wooden kettles.

We can readily recommend Monel lined tanks for all lines of dyeing.

Very truly yours,
Hillside Dyeing & Finishing Co. Inc.
S Janke

SJ:EV

Monel Metal is a registered trade mark applied to a technically controlled nickel-copper alloy of high nickel content. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

MONEL METAL

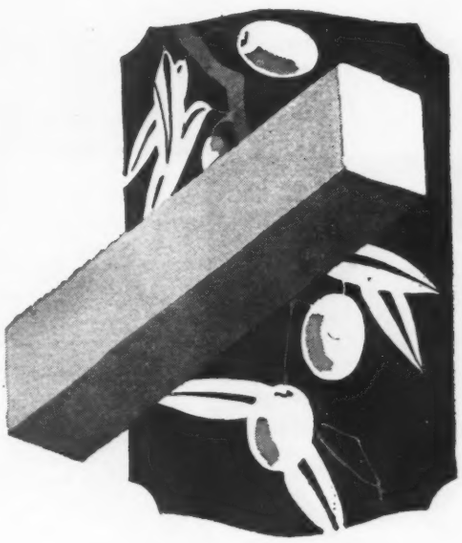
THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.

"Rest... on these Laurel's" PROFITABLY

TEXTILE manufacturers, the country over, have found they can "rest" safely, profitably on *Laurel Brand* products. They never vary. The name is their assurance of purity and uniformity.

Constant care and supervision at every step of production account for *Laurel's* record of success. Perhaps this is the reason why mercerizers, knitters, dyers—manufacturers in every branch of the textile industry show increasing preference for *Laurel Brand.*

More than twenty years' experience and a fully equipped laboratory are available to help you solve unusual problems. You, too, may be able to "rest profitably on *Laurel's.*"



Laurel Soap Mfg. Co.

INCORPORATED

WM. H. BERTOLET & SONS

2606 EAST TIOGA STREET :: :: PHILADELPHIA

SOAPS

For Scouring and Fulling

Pure Green Olive Soap
Genuine Olive Fig Soap
Palm Soap
Tallow Soaps
Red Oil Soap
Oleine Scouring Soap
Fulling Soaps (Special Formulae)
Chips, Solid Packed, Bars, Powder

SULPHONATED (SOLUBLE) OILS

All Strengths—All Types
Castor Oil (Soluble Castor)
Olive Oil (Soluble Olive)
Neatsfoot Oil (Soluble Neatsfoot)
Tallow (Soluble Tallow)
Corn Oil (Soluble Corn)
Cocoanut Oil (Soluble Cocoanut)
Red Oil
Cod Oil
Soluble Pine Oil

SOFTENERS

(One will answer your purpose)

Hydrocop
Laurel Textile Oil
Soluble Oils
Turkey Red Oils (Acid, Neutral, Alkaline finished)
Soluble Wax
AA Softener
Cream Softener WN (for making Back-filling paste)
Brilliant Softener 3B (for Mercerizers)
Olive Oil Softeners
Cream Softeners
Olive Savon Oil (Softener and Black Intensifier)

HEADQUARTERS FOR

Pure Commercial Olive Oil
Neatsfoot Oil
Lard Oil
Red Oil
Castor Oil
Palm Oil
Olive Oil Foots
Gelatine and Glue

See also Page 371, Consolidated Textile Catalogs

KNITTING, SILK, and RAYON OILS

Crystal Rayon Oils (for every rayon purpose)
Ruxite (Soluble Rayon Oil)
Silk Oil BW (for Back-winding)
Stainless Knitting Machine Oil
Laurel SXG Oil
Neatsfoot Oil
Soluble Neatsfoot Oil

DYEING AND PENETRATING OILS

Hydrosol
Soluble Pine Oils
Monolo Oil (for silk dyers)
Penetrating Oil C

FULLING AND SCOURING COMPOUNDS

Nebosol (Fulling and Scouring Compound) Metrosol (Fulling and Scouring Oil) Hydrosol.

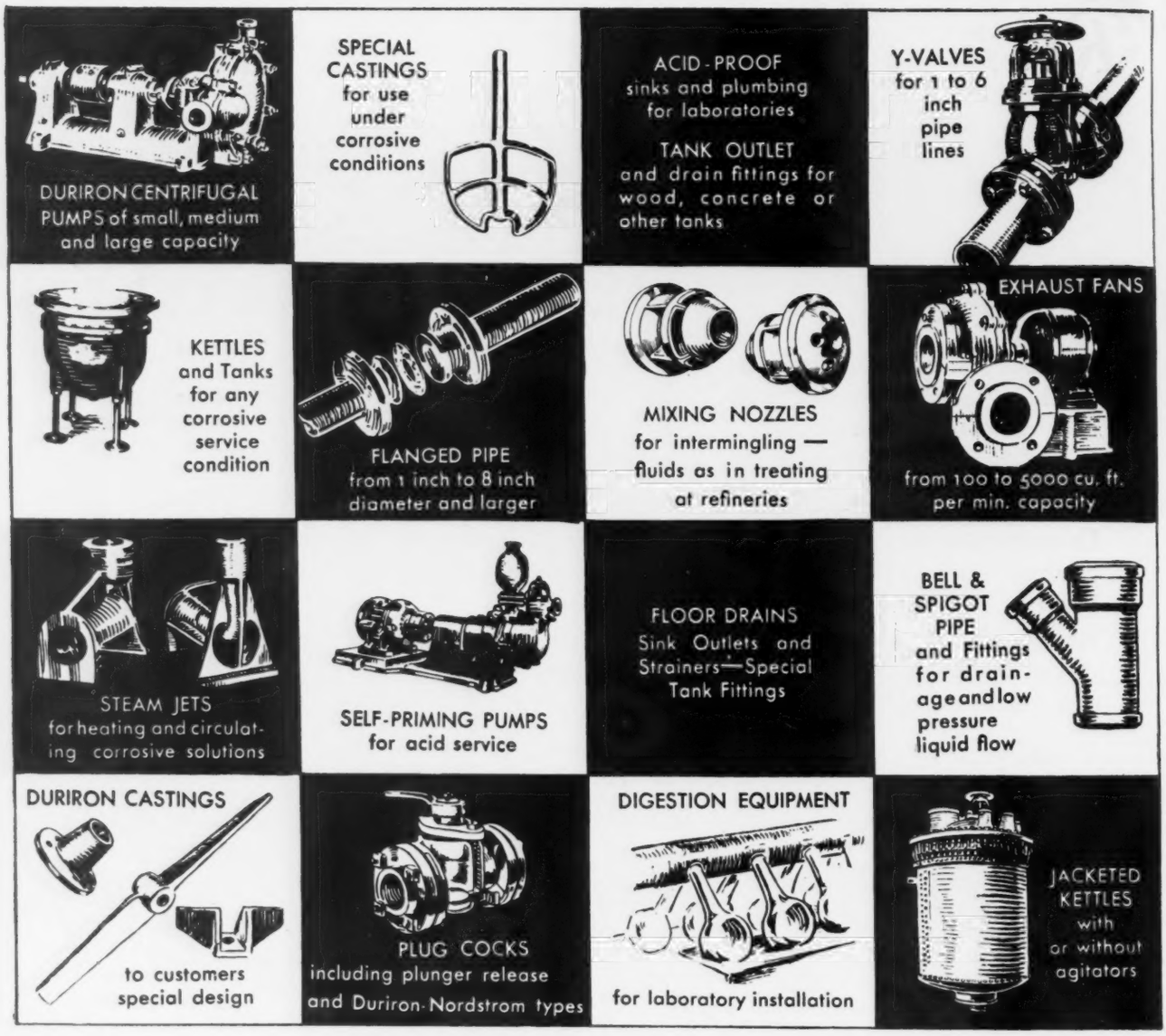
HOSIERY FINISHES AND SCROOPS

Hetrosol
No-Stik

PRODUCTS for SPECIFIC PROCESSES

Rayon Oils
Silk Throwster's Oils
Wool Oils
Soluble Wool Oils
Worsted Oils
Worsted Emulsions
Olive Oil Emulsions
Cordage Oils
Fat Liquor Compounds
Silk Boil Off Oils (for all types hosiery)
Benzine Soaps
Bradford Wool Finish
Laurel Kier Compounds
Laurel Scouring Powder
Waterproofing Soaps
Automobile Soaps

Textile Treatment Specialists since 1909


DURIRON CENTRIFUGAL PUMPS of small, medium and large capacity
SPECIAL CASTINGS for use under corrosive conditions
ACID-PROOF sinks and plumbing for laboratories
TANK OUTLET and drain fittings for wood, concrete or other tanks
Y-VALVES for 1 to 6 inch pipe lines
KETTLES and Tanks for any corrosive service condition
FLANGED PIPE from 1 inch to 8 inch diameter and larger
MIXING NOZZLES for intermingling — fluids as in treating at refineries
EXHAUST FANS
from 100 to 5000 cu. ft. per min. capacity
STEAM JETS for heating and circulating corrosive solutions
SELF-PRIMING PUMPS for acid service
FLOOR DRAINS Sink Outlets and Strainers—Special Tank Fittings
BELL & SPIGOT PIPE and Fittings for drainage and low pressure liquid flow
DURIRON CASTINGS
to customers special design
PLUG COCKS including plunger release and Duriron-Nordstrom types
DIGESTION EQUIPMENT
for laboratory installation
JACKETED KETTLES with or without agitators

How well DO you know DURIRON?

Universally Acid Resistant.

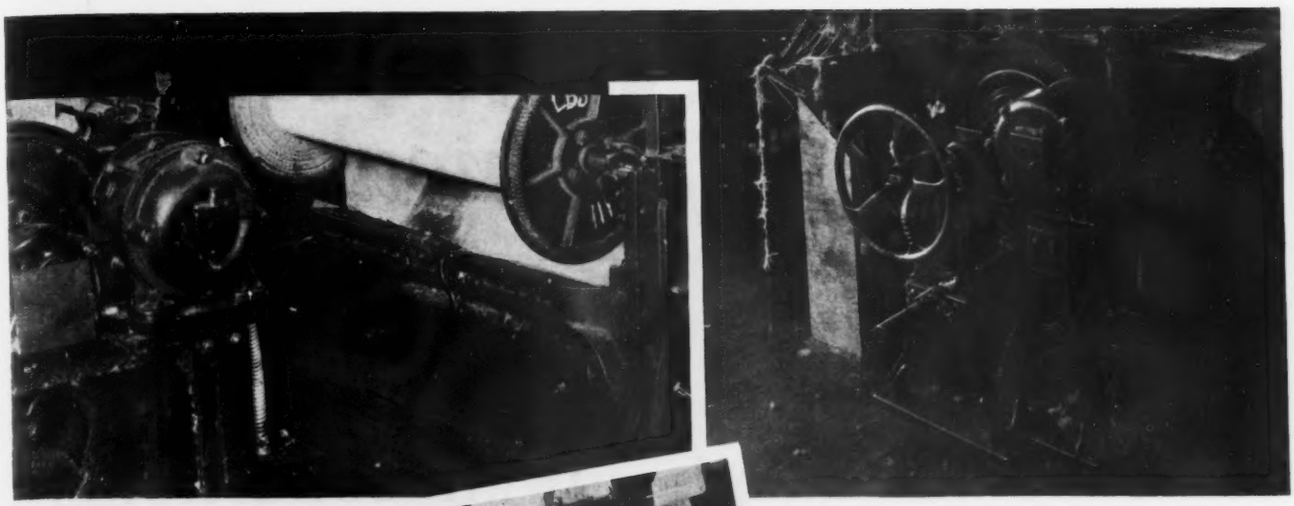
Backed by 17 years' experience in designing to utilize its virtues.

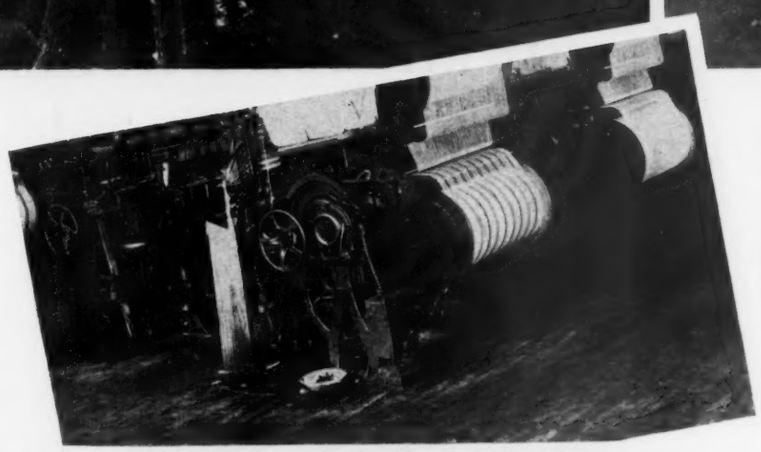
We recommend it only where we demonstrate it can save you money.

Do you realize how many standard products are in our line—and how much other acid-proof equipment can be made? Many things are stocked in a range of sizes. Our pattern storage holds thousands of patterns of things made for others. Perhaps we could even adapt one of these to fill some special need of yours. Wherever acid corrosion exacts a toll, you ought to consider DURIRON.

Write us. We'll arrange for you to talk it over with the nearest of the 36 local offices of THE DURIRON COMPANY, INC., 428 No. Findlay Street, Dayton, Ohio.

D-68





Here is the EVIDENCE

Lint-covered, oily machines and stained floors are sure evidence of oil-spotted product—already gone through the machines—but leaving a trail of lowered profits due to goods sold at a mark down.

NON-FLUID OIL stops this waste at once—it is so adhesive that *it does not waste or spatter*—keeps bearings well protected from wear and will not get on goods in process.

Good News—the cost is less—for NON-FLUID OIL lasts so much longer per application than liquid oil that it actually reduces lubricating cost per hour—while permitting your product to be sold at its full value.

Get the whole story—send coupon for testing sample and bulletin, "Lubrication of Textile Machinery."

NEW YORK & NEW JERSEY LUBRICANT CO.
Main Office: 292 Madison Ave., New York, N. Y.

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Better Lubrication

TRADE MARK REGISTERED
NON-FLUID OIL
IN U.S. PAT. OFFICE & FOREIGN COUNTRIES

at Less Cost per Month

COUPON

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N. Y. & N. J. Lubricant Co.

Please send bulletin and sample of NON-FLUID OIL.

NAME_____

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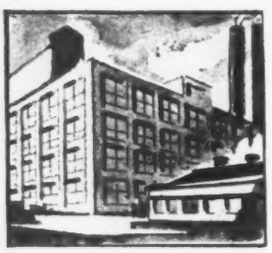
Carrier Announces

a complete line of central station and unit air conditioners and unit heaters



THROUGH the recent consolidation of Carrier Engineering Corporation and York Heating & Ventilating Corporation, Carrier now offers a complete line of central station systems, unit air conditioners and unit heaters, providing the exact atmospheric conditions demanded by *any* phase of textile production . . . for *any* product or process . . . for *any* plant, large or small, in *any* location.

The merging of the engineering, manufacturing and sales resources of the makers of these three pioneer lines of air conditioning and heating equipment, enables us to recommend, without bias, the type equipment best suited to your individual requirements.

Complete air conditioning is offered through the well known Carrier Central Station System or Unit Air Conditioner . . . for general air conditioning of large or small mills; for individual departments, yarn conditioning or testing rooms.

Where heating alone is required, the established line of York Heat-Diffusing Units and Kroy Unit Heaters, now manufactured by the Carrier-York Division, is offered. These Units replace less efficient wall radiators and assure more even temperatures throughout the entire room. Machines, too, are kept in better adjustment by the avoidance of hot spots near wall radiators.

Whatever your demands as to atmospheric conditions . . . whether floor or ceiling types are specified, due to space requirements . . . there is Carrier equipment to meet your needs. The result is a higher quality product, a more uniform schedule of production, greater efficiency of operation. And equally important is the factor of more healthful and comfortable working conditions for employees.

One of our engineers will be pleased to call, at your convenience, to discuss your particular problems with you.

Carrier Engineering Corporation

A DIVISION OF CARRIER CORPORATION

NEWARK, NEW JERSEY

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DRYING
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OFFICES: New York, Philadelphia, Boston, Chicago, Cleveland, Washington, Detroit, Dallas, Los Angeles

EXPORT DIVISION: 505 Fifth Avenue, New York

CARRIER ENGINEERING COMPANY, LTD.
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CÄRRIER
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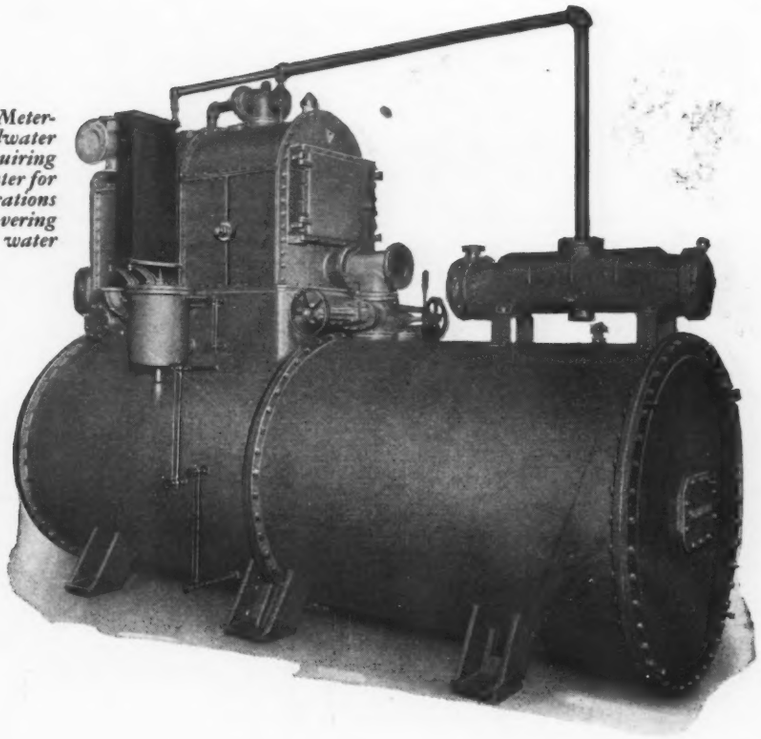
Manufactured Weather makes "Every day a *good* day"



Worthington Deaerating Metering Storage Type Feedwater Heater, for the plant requiring large quantities of hot water for boilers and process operations . . . one of several types covering the entire range of hot water requirements

Here's a feedwater heater

. . . that will put Worthington's experience *to work in your plant*

BOILER feedwater . . . process water . . . delivered at high temperature, day-in and day-out without interruption, at the *lowest possible cost.*

That is the kind of performance that Worthington has built into the new Type N Stationary Feedwater Heater . . . the result of Worthington's engineering skill and long experience in the building of heat transfer equipment.

The unit shown here represents the most advanced development in heaters . . . embodying deaerating, metering and storage features. With this equipment, corrosive oxygen ceases to be a problem . . . scale forming ingredients are largely precipitated and removed . . . delivery of water is accurately measured and recorded.

Worthington Feedwater Heaters are built to meet any requirement of capacity or type of service . . . and Worthington engineers are ready to cooperate in a study of your individual needs.

Bulletin W-210-B1 describes this equipment. *May we send you a copy?*

WORTHINGTON

PUMPS
COMPRESSORS *Stationary and Portable*
CONDENSERS and Auxiliaries
FEEDWATER HEATERS
GAS ENGINES
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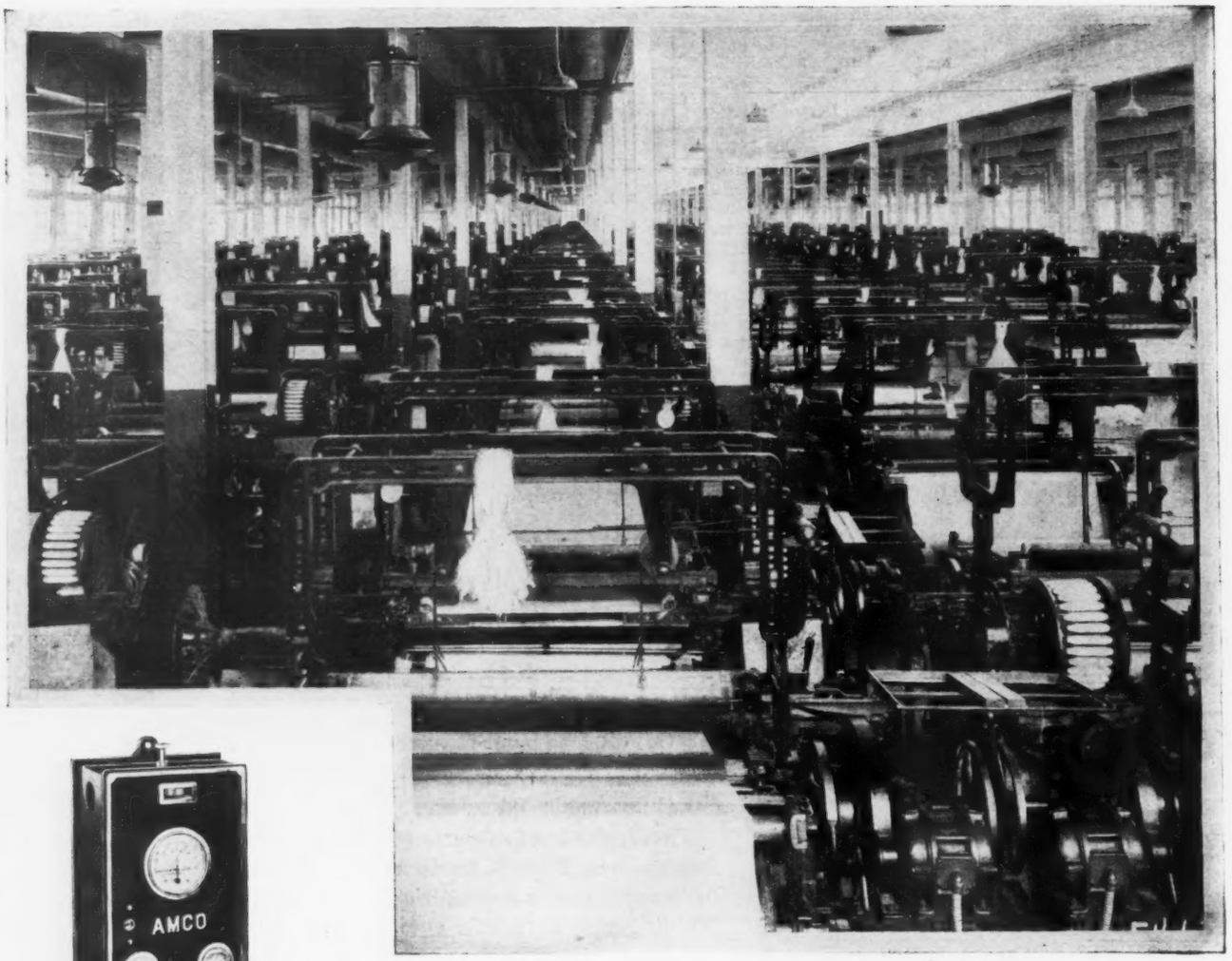

This newly designed Amco Humidity Control automatically regulates and controls humidity in Textile and other mills without using wet or dry bulb actuated devices.

AMCO Humidifiers are standard

AMCO humidifiers installed over looms in the weave shed at Nashawena Mills. Note how they are staggered with respect to each other giving uniform distribution of humidity to all machines.

Like other up-to-date textile mills, the Nashawena Mills of New Bedford, Mass. (J. L. Burton, Agent) are equipped with American Moistening Company's AMCO Humidifiers. The photograph is a view through the Weave Shed.

Nashawena Mills have the largest spindlage of any mill in the United States operating under one roof. Their equipment consists of 6100 looms and more than a quarter of a million spindles.

Our humidification engineers are at your service without charge or obligation to make a written survey of your humidification needs. Get an expert air doctor's advice on humidification requirements in all departments. An air doctor's diagnosis costs you nothing and may result in changing red figures into black figures, with a sweet running plant and better working conditions for labor as a bonus.

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SALES OFFICES
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AMERICAN MOISTENING CO.

Humidifying Devices

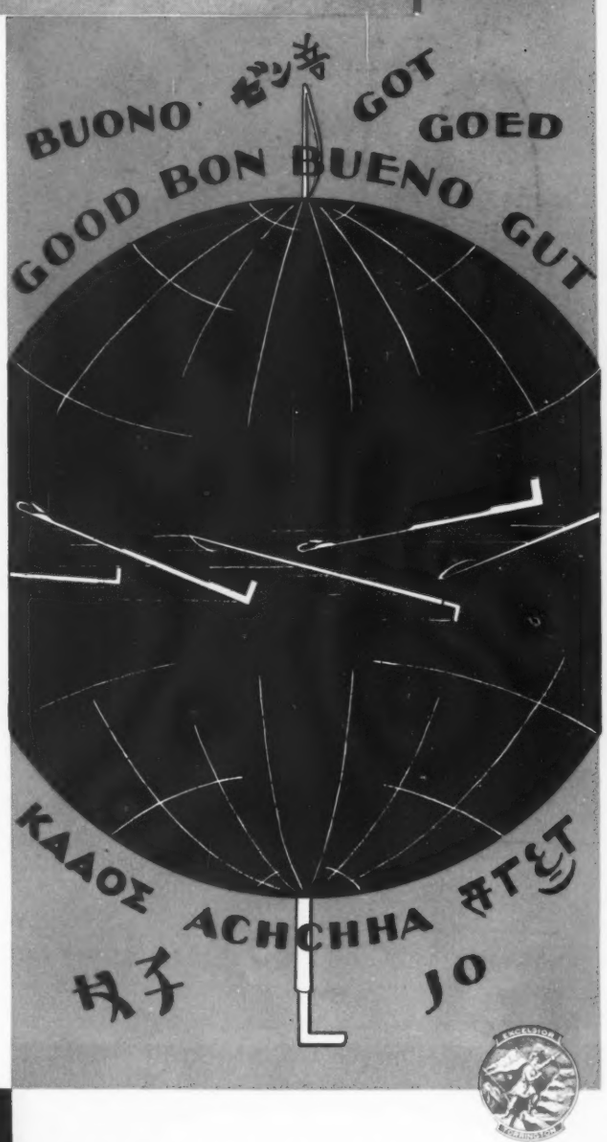
Air Doctors Since 1888

THE SUN NEVER SETS ON TORRINGTON NEEDLES!

TORRINGTON Latch Needles are known and preferred wherever fine, tight knitting is produced. Regardless of nationality, the knitting industry has placed the stamp of its approval upon these good needles.

Skillful, conscientious workmanship . . . an organization made up in part of the third generation of Torrington needle craftsmen . . . and continuous and close touch with manufacturing developments . . . are responsible for the excellence of these needles.

You will most certainly approve of the high standards of precision work so amply evidenced in Torrington Needles . . . and you will obtain practical benefits in the shape of high-grade knitting.



The red box with the green label.

BRANCHES:
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ESTABLISHED 1866
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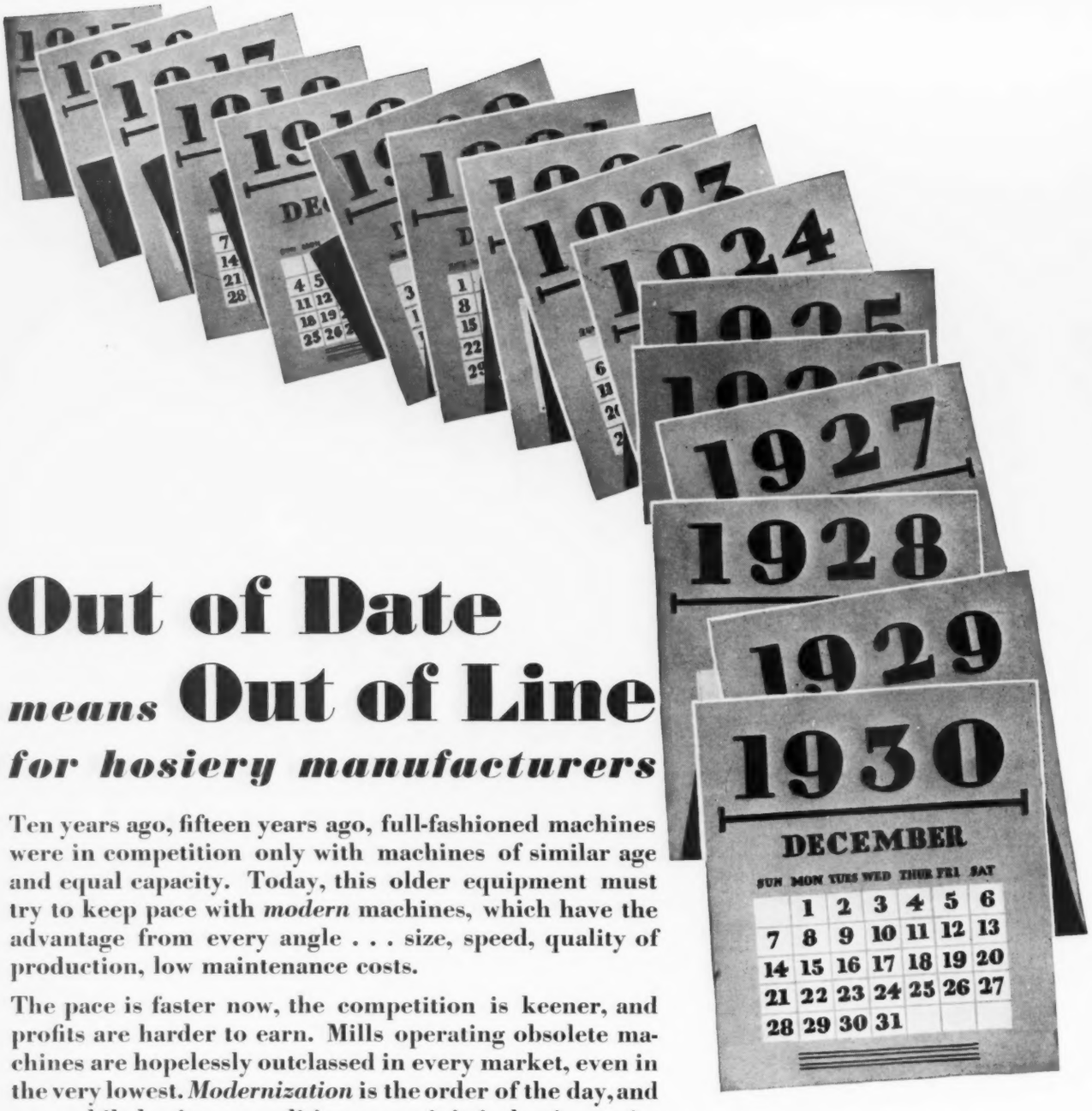
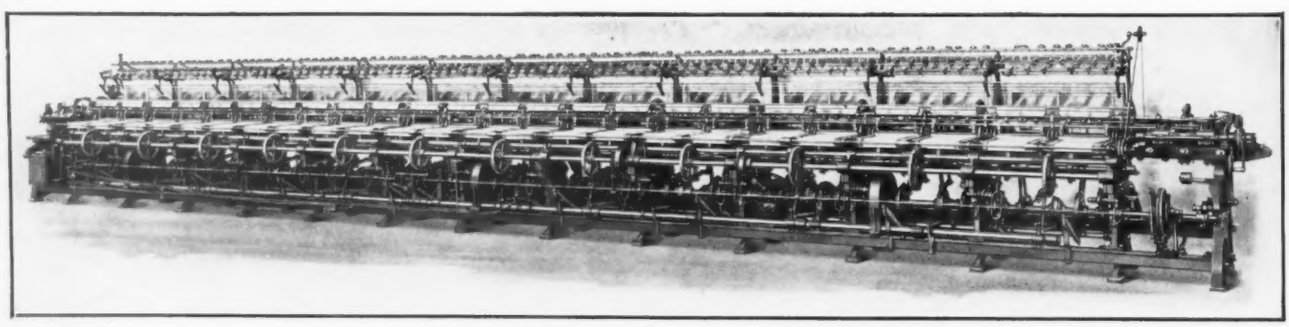


Out of Date
means Out of Line
for hosiery manufacturers

Ten years ago, fifteen years ago, full-fashioned machines were in competition only with machines of similar age and equal capacity. Today, this older equipment must try to keep pace with *modern* machines, which have the advantage from every angle . . . size, speed, quality of production, low maintenance costs.

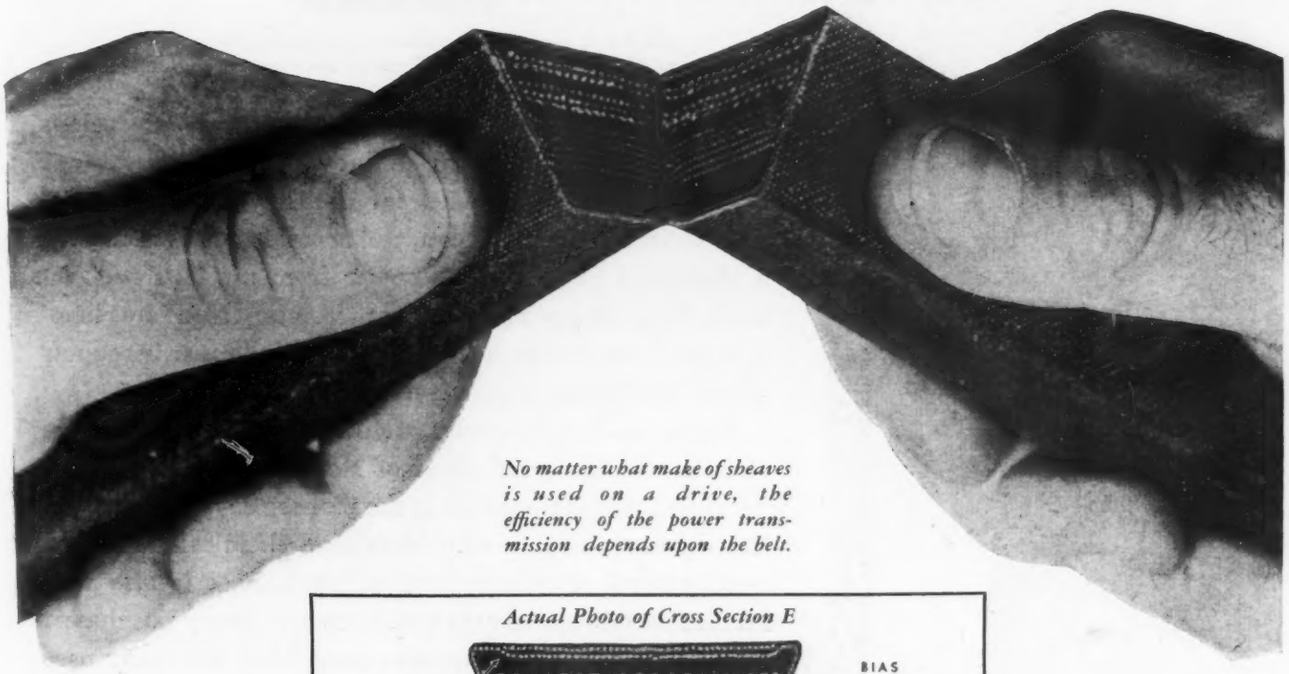
The pace is faster now, the competition is keener, and profits are harder to earn. Mills operating obsolete machines are hopelessly outclassed in every market, even in the very lowest. *Modernization* is the order of the day, and now, while business conditions permit it, is the time to install machinery which shows immediate and lasting profit.

TEXTILE MACHINE WORKS
Reading, Penna.



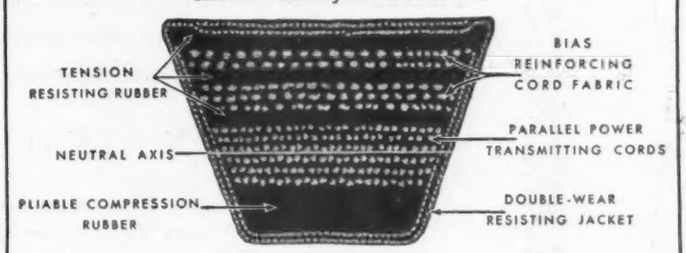
The Reading Full-Fashioned Knitting Machine as it stands today—after 32 years of development—is the lowest priced, highest producer ever offered.

A V-Belt Drive is no Better than the Belt...



No matter what make of sheaves is used on a drive, the efficiency of the power transmission depends upon the belt.

Actual Photo of Cross Section E



Patented Construction

Here is an actual demonstration of the scientific design and construction that bring about Gilmer V-Belt superiority. Every detail is there for a specific purpose — Gilmer does not manufacture a drive. The very fact that the huge Gilmer V-Belt business is built on replacements of other belts speaks for itself.

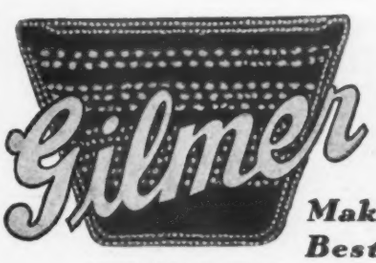
When a V-Belt bends around a sheave the upper part is in tension, the lower in compression. At some point — *the neutral* axis — neither force is present. At this point, in every Gilmer V-Belt, will be found superimposed layers of unusually strong cords — *a feature originated by Gilmer engineers.* These cords transmit the load without stretching and without setting up internal friction.

Above and below these cords is tough wear-resisting rubber. The upper and tougher rubber is compounded for repeated bendings without deterioration, while the lower and more pliable is compounded to resist compression.

On large Gilmer V-Belts, bias reinforcement cords are added to provide lateral stiffening against buckling. The cords and rubber layers are surrounded by two outer-jackets of rubber impregnated, wear-resisting duck, which excludes foreign matter — The entire belt is vulcanized into one solid elastic mass that possesses maximum stamina and strength.

Since all Gilmer V-Belts are made in accurate metal molds, their dimensions and angles are invariably correct. And — because of their design and construction they *will not twist or buckle in the grooves.*

Gilmer V-Belts have earned an enviable reputation for PERFORMANCE — they have proved themselves in industry after industry — When you are offered Gilmer V-Belts you can be sure that one all-important problem in power transmission is solved — "Belts by Gilmer" means efficiency — plus. L. H. Gilmer Co., Keystone & Cottman Streets, Tacony, Philadelphia, Penna.



Patented Construction

Makers of the World's Best-Known V-Belts